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URBAN WATER MANAGEMENT PLAN

January 2006

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Project No. 62026.155"

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Prepared by:"

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1820 Commercenter Circle
San Bernardino, CA 92408
(909) 890-1255

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SECTION ONE

AGENCY COORDINATION

1.1 Introduction

The purpose of this report is to provide an Urban Water Management Plan (UWMP) for the West Valley Water District (formerly West San Bernardino County Water District), as required by State Assembly Bill (AB) No. 797-Klehs. This Plan includes a brief description of West Valley Water District's (District) water system, develops information on water use and current water conservation measures, analyzes future projections of water supply needs, as well as alternate conservation measures, and includes their implementation schedules. The Plan is an update to the 2001 Plan prepared for the District by ***Engineering Resources of Southern California, Inc***.

District staff have reviewed this Plan and, based on their recommendation, will be adopted by the Board of Directors following a public hearing where testimony will be taken and the Plan modified, if necessary. The Plan then becomes the guideline for water conservation within the District's water system, requiring upgrading at least every five years.

1.2 Background

The California State Legislature passed the Urban Water Management Planning Act (AB 797, California Water Code, Division 6, Part 2.6, Section 10610-10657), which was signed into law by Governor Deukmejian on September 21, 1983. The State Water Code was further amended by Assembly Bill 2661, approved by the Governor on July 18, 1990 as it relates to urban water conservation. The Bill requires urban water suppliers providing water for municipal purposes to more than 3,000 customers or supply more than 3,000 acre-feet of water annually, to prepare and adopt an UWMP. West Valley Water District falls under both definitions.

The Legislature enacted two measures that modified the Act in 1991. The first measure requires water suppliers to include an urban water shortage contingency analysis as part of its UWMP (AB 11). This measure also exempts the implementation of urban water shortage contingency plans from California Environmental Quality Act (CEQA). The second measure requires an UWMP to describe and evaluate water recycling activities, to be updated once every five years, to include an estimate of projected potable and recycled water use, and to describe activities relating to water audits and incentives (AB 1869).

In 1993, the Legislature enacted a measure, which allows members of the California Urban Water Conservation Council (CUWCC) to submit to the State a copy of their annual report to the Council to satisfy current reporting requirements relating to UWMPs (AB 892).

The Legislature enacted additional measures in 1994. The first measure, Senate Bill (SB) 1017, authorizes an urban water supplier to recover the costs incurred in preparing its Plan and implementing the reasonable water conservation measures included in the Plan. The second measure requires water suppliers to give greater consideration to recycled water in their UWMPs (AB 2853).

In 1995, the Legislature enacted two additional measures. The first measure requires urban water suppliers to include, as part of their UWMP, a prescribed water supply and demand assessment of the reliability of their water service to their customers during normal, dry, and multiple dry water years (AB 1845). The assessment shall compare total water supply sources available to the supplier with the total projected water use over the next 20 years, in 5-year increments. The second measure makes the following changes to the Urban Water Management Plan Act (SB 1011):

- Requires urban water suppliers to update their Plans at least once every five years on or before December 31 in the years ending in 5 and 0. Requires urban water suppliers to include a prescribed water supply and demand assessment.

- Requires suppliers to encourage active involvement of diverse social, cultural, and economic elements of the population within the service area prior to and during preparation of the Plan.

- Prior to adopting the Plan, the urban water supplier shall make the Plan available for public inspection and shall hold a public hearing.

- Exempts suppliers who are implementing a conservation program from conducting a cost-benefit analysis of those conservation programs.

- Requires the Department of Water Resources to submit a report to the Legislature summarizing the status of Plans on or before December 31 in the years ending in 1 and 6.

In 2001, the Legislature enacted AB 901 and SB 610. The first measure incorporates changes in Section 10631 of the Water Code (AB 901) and the second measure requires additional information to be included as part of the UWMP if groundwater is identified as a source of water (SB 610).

1.3 Scope of Work

In preparing the proposed Plan, the following scope of work was developed utilizing guidelines provided by the California Department of Water Resources.

1. Provide a brief summary and map describing the District's water system, including sources, facilities, and operations.

2. From available records, prepare a brief summary of historical, current and projected water use in terms of annual consumption. For the current year of record, estimate the percentage of use from various categories such as residential, industrial, commercial, etc.

3. Identify and describe the existing and planned sources of water available along with a description of the groundwater basins and the District's adjudicated pumping rights.

4. Discuss the reliability of the planned water sources and their vulnerability to seasonal, climatic shortage, and water quality.

5. Assess the water supply reliability and compare the total water supply sources available versus the projected future demands within the system.

6. Describe conservation measures currently in use by the District, how they are practiced and their success. Both structural measures such as meters and retrofit devices, and non-structural methods such as rates and public information programs, are to be described and their effectiveness analyzed.

7. For those conservation measures not currently practiced by the District, prepare an analysis of the potential for improved efficiency of water use if alternative conservation measures were adopted. In the analysis, address the potential costs and other significant economic, environmental, social, health, and technological impacts, as appropriate.

8. Develop a history and description of the District's supply deficiencies, if any. This description should include the available source(s), capacity, their production, frequency of problem, actions taken, and plans for development of new sources.

9. If a future expansion of water supplies is needed, identify the projected amount of additional water supply and sources necessary to operate the water system without deficiencies.

1.4 Organization

The District is a County Water District, a public agency of the State of California, organized and existing under the County Water District Law (Division 12, Section 30,000 of the Water Code) of the State of California. Among other typical political subdivision powers, it has the power of taxation and eminent domain.

1.5 Location

The West Valley Water District is located in southwestern San Bernardino County with a small part in northern Riverside County. The District is adjacent to the western limits of the City of San Bernardino on the east; adjacent to, and including the eastern part of the City of Fontana on the west; adjacent to the U.S. Forest Service boundary on the north; and the County of Riverside on the south. The District is divided into northern and southern sections by the central portion of the City of Rialto.

1.6 History

The District was formed in 1952 under the name of Bloomington County Water District. This early agency initially covered an area of only one (1) square mile and served water to approximately two hundred (200) households. It had no water rights of its own, but served water secured through stock owned in the Citizens Land and Water Company.

By 1959, the District's name had been changed to the Semi-Tropic County Water District. At about the same time, it became clear that the City of San Bernardino and perhaps the San Bernardino Valley Municipal Water District would condemn water rights of the Citizens Land and Water company and the Lytle Creek Water and Improvement Company, another mutual water company in the same general area. While the rights of the existing customers would be protected, all future growth and development in the service areas of these companies would be stopped by lack of adequate water supply. To deal with this concern, Semi-Tropic County Water District worked out a cooperative agreement to absorb the assets of the Citizens Land and Water Company, Lytle Creek Water and Improvement Company, and the Slover Mutual Water Company. Annexations to the District were completed and a revenue bond was floated to acquire the private companies' assets.

A new name was chosen, and in 1962 the West San Bernardino County Water District was formed. The new District acquired water rights that date back to 1897, facilities for surface diversion from Lytle Creek, 22 wells in four different water basins, storage and distribution facilities, administrative offices and equipment, and maintenance and operation facilities.

At that time, the largest portion of the District's water was used for irrigation of citrus, grapes, vegetables and a variety of other agricultural products. It was this large irrigation demand that allowed the U.S. Department of the Interior, Bureau of Reclamation, to enter into a loan agreement with the District. This financed the construction of the backbone water transmission and storage facilities in a large portion of the District. This area is known as Improvement District No. 1.
The District has acquired several other water suppliers since 1962, including the Park Water

Company's Bloomington Water System in 1965, the Inter County Water Company in 1987, and Crestmore Heights Mutual Water Company in 1997. On April 7, 1989, the District joined the West End Water Development Treatment and Conservation Joint Powers Authority (JPA).

In 2003 the District went through yet another name change. Today, the District is known as the West Valley Water District and serves a population of over 60,000.

1.7 Update in General

The region has been experiencing a drought that started in 1999 and continued until late 2004 causing water levels in wells to decline. From December 2004 to May 2005, the region experienced above average rainfall that recharged the Lytle Basin which is the District's most heavily utilized water basin. Levels in the Lytle Basin groundwater have gone from the lowest the District has seen, up to normal year operating levels. In some wells the District has noted levels rising over 200 feet. Throughout the drought the District suffered a significant loss of production capacity with two wells (Well #1 and Well #5A) going dry and incurred higher energy costs due to lowering water tables in the Lytle Basin.

1.8 Data Sources

Frequent references and information used to compile this report have been obtained from data provided by the District, from judgments, ordinances, articles and reports in the attached appendix as well as the following:

Water Master Plan, of November 2004, prepared for the District by *Engineering Resources of Southern California, Inc.*

West San Bernardino County Water District Urban Water Management Plan, of February 2001, prepared for the District by *Engineering Resources of Southern California, Inc.*

Water Supply Assessment for the Cactus Specific Plan, of Sept. 2005, prepared for the District by *Engineering Resources of Southern California, Inc.*

Guidebook to Assist Water Suppliers in the Preparation of a 2005 Urban Water Management Plan, of January 18, 2005, prepared by the *California Department of Water Resources.*

Water System Master Plan Report, of December 1996, prepared for the District by *Engineering Resources of Southern California, Inc.*

Portions of the **Department of Water Resources Draft State Water Project Delivery Reliability Report 2005**.

1.9 Agency Coordination

The District is a member of, has participated in, or works in conjunction with the following:

Lytle Creek Water Conservation Association - Over half of the District's water is pumped from the Lytle Creek Basin. A 1924 judgment adjudication allocated all water rights in the basin to the various user agencies.

Upper Santa Ana Water Resources Association (USAWRA) - An association of all the public retail water purveyors that pump out of the Bunker Hill Basin.

San Bernardino Valley Municipal Water District (SBVMWD) - SBVMWD covers a service area of about 325 square miles, contains a population of approximately 600,000 and is a State Water Contractor (SWC) with an annual entitlement of State Project Water (SPW). In addition to being a SWC, they have also been given the responsibility of overall groundwater management within its boundary. SBVMWD in conjunction with many of the retail water agencies within its boundary recently received a grant through Proposition 50 to create an Integrated Regional Groundwater Management Plan (IRGMP). The IRGMP will provide coordination between all of the existing planning documents and legal documents within their district which govern the management of groundwater and surface water.

Rialto Basin Management Association - The Rialto Basin supplies north San Bernardino, the Cities of Colton, Fontana, and Rialto.

Institutional Controls Settlement Agreement (ICSA) - The ICSA group administers the Consent Decree for the State of California and the City of San Bernardino Water Department vs United States Department of Army for the groundwater contamination management of the Bunker Hill Groundwater Basin for the Newmark and Muscoy Contamination Plumes. The District is a member of the ICSA Group for management of the groundwater basin for the Newmark and Muscoy Plumes.

The Fontana Water Company, the Cities of Rialto, Colton, San Bernardino, and SBVMWD have mutual aid agreements with the District to provide water under emergency conditions.

SECTION TWO

CONTENTS OF URBAN WATER MANAGEMENT PLAN

2.1 Appropriate Level of Planning for Size of Agency

The District is part of the greater San Bernardino-Riverside-Ontario metropolitan area and is located about fifty miles east of downtown Los Angeles. It is situated in an interior valley of Southern California known as the San Bernardino Valley and within the Santa Ana River Basin Watershed. Lands within the District have a gentle upward slope to the north with the foothills of the San Gabriel mountains and the San Bernardino National Forest providing its northern boundary. The major features of the District's climate are hot, dry summers and cool, wet winters. Most of the precipitation occurs from November to March with little to none occurring during the summer months of June through September. The average rainfall in the Valley is approximately 16 inches per year with occasional droughts on an average seven-year cycle. Summer temperatures commonly are above 85°F and may exceed 103°F.

Water use in the District's service area is related to economic, demographic, and climatic factors. Increases in population have offset decreases in agricultural water use over the last 25 years and economic growth will continue to influence water use in the future.

The majority of the District's service area lies within the boundaries of the SBVMWD. The SBVMWD and the Inland Empire Utilities Agency are two of many agencies contracting with the State of California to receive Northern California Water as a part of the California Water Plan.

2.1.1 Distribution System

The District's distribution system consists of eight pressure zones which are divided into North and South Systems with the City of Rialto serving the area in between. Elevations within the service area range from 850 feet to 2,180 feet above mean sea level. Water can be dropped to lower zones through pressure reducing valves or lifted to upper zones through a series of booster pump stations. There are ten booster pump stations that lift water to upper zones to replenish storage and to supply demand. Nine of the booster stations are operated 16 hours per day based on preset levels in the reservoirs to which they are pumping. The tenth booster pump station at the Oliver P. Roemer Water Filtration Facility operates when the facility is on line. Each zone's booster pump station is configured to boost the required supply with one pump on standby.

Storage for the system is provided by both welded steel and reinforced concrete tanks. Twenty three reservoirs with capacities ranging from 0.10 million gallons (mg) to 7.0 mg provide 65.6 mg of storage.

2.1.2 Production and Consumption

From the District's latest Public Water System Statistics for the year 2004, the average daily water production (for potable water) was 20.3 million gallons per day (mgd) or 22,734 acre feet per year (AF/Yr). This included domestic, commercial, bulk, hydrant meters, and unaccounted for water within the system. The estimated peak summer day production is assumed to be twice the average day or 40.6 mgd.

The District supplies non-potable water to the El Rancho Verde Golf Course with raw water from the State Water Project, surface water from Lytle Creek, and backwash water from the Oliver P. Roemer Water Filtration Facility (WFF). Backwash water accounts for 40 of the golf course s supply in the summer and as much as 60 in the winter, with the remaining water being supplied by Lytle Creek or State Project Water. The District s 2004 Water Master Plan reports that the golf course used 1,357 AF in fiscal year 2002/03.

Demand within the District increases during the summer months, June through September, when little or no precipitation occurs. Consumption for the past three years is shown below in Table 2-1.

Table 2-1
Past Domestic Water Consumption

Note: The data used in the above table was obtained from the District's Financial Statements June 30, 2002 through June 30, 2004.

The past and current water consumption measured in AF/Yr is shown below for the different categories of uses within the District.

Table 2-2
Past and Present Water Demands by Fiscal Year
(AF/Yr)

Category	1974/75	%	1989/90[1]	%	1994/95[1]	%	1999/00[2]	%	2003/04[2]	%
Domestic	7,004	76	10,426	77	11,424	81	15,680	80	19,230	92
Commercial/ Industrial	--[3]		1,846	14	1,970	14	2,800	14	--[3]	
Irrigation	2,197	24	1,259	9	306	2	730	4	630[4]	3
Wholesale/Bulk	0		0	0	480	3	490	3	1,100	5
TOTAL	**9,201**	**100**	**13,531**	**100**	**14,180**	**100**	**19,700**	**100**	**20,957**	**100**

(1) Metered water sales, does not include unaccounted for water.
(2) Includes unaccounted for water.
(3) Included in domestic.
(4) Does not include supply to golf course.

2.1.3 Water Filtration Facility

The District's existing Oliver P. Roemer Water Filtration Facility has a treatment capacity of 9.6 mgd. The facility utilizes a blend of primarily raw water from Lytle Creek and is supplemented with water from the State Water Project when flows from Lytle Creek are inadequate to satisfy demand. The facility utilizes a direct filtration treatment system consisting of rapid mix, clarification with coagulation, flocculation, dual-media filtration and disinfection. The Oliver P. Roemer Water Filtration Facility is currently under expansion and will have the ability to treat a total of 14.4 mgd by the end of 2005. When the expansion is complete, the WFF will be classified as a conventional treatment plant. The new facilities consist of flocculation and sedimentation basins and UV disinfection.

2.1.4 Well Supply

The District has 25 production wells (two wells utilized as standby/summer peaking and W-23A as standby only for W-24) with a total pumping capacity of 29,541 gallons per minute (gpm) or production capacity of 26.5 mgd (pumping 16 hours per day) as shown in Table 2-3. Basin levels have risen due to the above average rain fall last winter and production capacities will increase above those shown in Table 2-3. One well (W-17) was being tested for water quality, four wells (W-11, W-29, W-37 and W-39) need well head treatment, two wells (W-18A and W-42) have well head treatment, three wells (W-39, W-40 and W-54) need additional equipment for operation, and four more wells (W-43,W-44, W-55 and W-56) are planned to be drilled before the year 2008. The District currently operates all of its wells 16 hours per day during off-peak hours based on preset reservoir

levels.

The following table represents the well capacity recorded from Edison Pump Tests of 2004 and 2005. Well levels were the lowest on record and reflect drought conditions for production capacity.

Table 2-3
Well Capacity as of May 2005

Zone	Designation	Basin	Location	Pumping Capacity (Gpm)	Production Capacity (Mgd)[1]
2	W-16	R	296 S. Eucalyptus Avenue, Rialto	1,255	1.2
2	W-17 [2]	R	404 S. Acacia Avenue, Rialto	1,075	0.0
2	W-18A	NR	1783 S. Sycamore Avenue, Colton	1,820	1.7
2	W-29	NR	180 W. Slover Avenue, Fontana	0	0.0
2	W-40 [3]	NR	157 Resource Drive, Rialto (Not equipped)	0	0.0
2	W-41	NR	3353 Industrial, Rialto	2,200	2.1
2,3,3A	W-15	BH	1950 W. 9th St., San Bernardino	1,115	1.1
2,3,3A	W-30	BH	2015 W. 9th St., San Bernardino	2,000	1.9
3	W-37 [4]	C	17186 ½ Slover Avenue, Fontana	1,640	1.6
3	W-39 [5]	C	10301 Linden Avenue TPP, Bloomington	0	0.0
3	W-42	NR	295 E. San Bernardino Avenue, Rialto	1,765	1.7
3A	W-11[4]	R	238 W. Victoria St., Rialto	1,650	1.6
3A	W-33	R	855 W. Baseline Road, Rialto	1,407	1.4
4	W-1	LC	19523 Country Club Drive, Rialto	1,100	1.1
4	W-2	LC	19973 Country Club Drive, Rialto	1,800	1.7
4	W-4A	LC	5914 N. Sycamore Avenue, Rialto	1,500	1.4
4	W-5A	LC	5914 N. Sycamore Avenue, Rialto	1,500	1.4
3,4	W-7	LC	6871 Martin PMP, San Bernardino	1,230	1.2
3,4	W-8A	LC	6871 Martin Road, San Bernardino	1,280	1.2
4	W-34	LC	19653 Country Club Drive, Rialto	1,110	1.1
4	W-35A	LC	5800 N. Sycamore Avenue, Rialto	500	0.0
3,4	W-36	LC	3401 Plant	1,600	1.5
4	W-22A	R	5700 N. Riverside Avenue, Rialto	1,000	1.0
6	W-23A [6]	R	4334 Riverside Avenue, Rialto	390	0.0
6	W-24	R	4334 Riverside Avenue, Rialto	604	0.6
TOTAL				**29,541**	**26.5**

[1] 16-hours/day Pumping Time.
[2] Under evaluation for water quality and reactivation in 2003/04.
[3] To be on-line 2005/06.
[4] Standby Summer Peaking.
[5] To be on-line 2004/05.
[6] Standby for well W-24 only.

R = Rialto Basin - 5.8 mgd
NR = North Riverside Basin - 5.5 mgd
C = Chino Basin - 1.6 mgd
LC = Lytle Creek Basin - 10.6 mgd
BH = Bunker Hill Basin - 3.0 mgd

2.2 Service Area Information with 20 Year Projections
(California Water Code Section 10631 (a))

The District supplies water to over 60,000 people within the Cities of Rialto, Fontana and Colton, and the Counties of San Bernardino and Riverside. The distribution system covers an area of approximately 32 square miles with an additional 3,300 acres within the District's sphere of influence. Almost 50% of the District's service area is zoned residential, 29% is zoned commercial/industrial, with the remaining 21% classified as public facilities, open space, landfill, flood control/utility corridor, rail way corridor, parks, schools, and highway.

The water service area for the City of Rialto is located in the middle of the District, where limited growth will occur. The bulk of the population growth within the City of Rialto will be within the District's service area. The projected population numbers in the following table are the latest Southern California Association of Governments (SCAG) projections and do not reflect the unincorporated land to the north of Rialto that is anticipated to be within the District's service area when development in this area commences (Lytle Creek North Planned Development).

Table 2-4
SCAG Population - Current and Projected for the City of Rialto

Year				
2005	**2010**	**2015**	**2020**	**2025**
97,848	99,936	102,851	105,727	108,486

The District will not only see growth within the City of Rialto (which comprises the majority of the District's existing service area), but it will also see growth within the City of Fontana. A large portion of primarily undeveloped land in the District's northwestern section of its service area is within the City of Fontana. General plans for the City of Fontana allow a mix of open space, residential, and commercial development for this area.

The City of Fontana was estimated to be 60% built out in 2001 and a large section of the City of Fontana is yet to be populated. Significant growth will occur within the City of Fontana with the bulk of that population growth in the northern and southern sections of the City. The northern section will be served by the District, and in the southern section by Fontana Water Company. The population within Fontana on January 1, 2004 was estimated to be 154,800, an increase of 8,000 from the previous year. The future projected population for the City of Fontana is based on Department of Finance numbers and is presented in Table 2-5.

Table 2-5
Population Projections for the City of Fontana

Year				
2005	**2010**	**2015**	**2020**	**2025**
165,000	188,700	218,400	251,000	283,700

The current and future water demands within the District's service area are dependent on area conditions and characteristics. From 1984 to 2004, the District experienced a 106% increase in service connections. The following table shows the District's growth for those years.

Table 2-6
District Growth

Year	Total Connections [(1)]	% Increase
June 1984	8,142	
1985	9,220	13.2%
1986	11,241	21.9%
1987	11,897	5.8%
1988	11,943	0.4%
1989	12,644	5.9%
1990	13,155	4.0%
1991	13,994	6.4%
1992	14,036	0.3%
1993	14,346	2.2%
1994	15,092	5.2%
1995	15,112	0.1%
1996	15,148	0.2%
1997	15,240	0.6%
1998	15,390	1.0%
1999	15,663	1.8%
2000	16,005	2.2%
2001	16,360	2.2%
2002	16,488	0.8%
2003	16,718	1.4%
2004	16,832	0.7%

[(1)] Includes domestic, commercial, industrial and irrigation. Connection information obtained from the District's Financial Statements.

The northwestern section of the District contains more than 2,000 acres of generally undeveloped land. Over 900 acres zoned residential and commercial are either being developed or are in the planning stages. The residential developments include Coyote Canyon, Monarch Hills, Citrus Heights, Forecast Homes, Empire Companies, the Summit at Rosena, and the Cactus Specific Plan. In addition to these projects is the Lytle Creek North Planned Development, that will be north of the service area within the District's sphere of influence. These known developments will contain over 5,500 new dwellings. Based on this information, the District's population is expected to increase approximately 33% between June 2005 and June 2010.

Table 2-7
Expected Residential Growth by 2010

Development	**Number of Projected Residential Connections by 2010**	**Average Day Demand (mgd)**	**Projected Domestic Demand Growth (AF/yr)**
Coyote Canyon	645	0.45	504
Monarch Hills	305	0.26	291
Citrus Heights	560	0.46	515
Forecast Homes	100	0.084	94
Empire Companies	554	0.32	358
Summit at Rosena	399	0.375	420
Lytle Creek North Planned Development	2,370	1.59	1,781
Tract 16621	55	0.046	52
Cactus Specific Plan	785	0.66	739
Total	**5,673**	**4.245**	**4,755**

The projected population growth within the District's service area was based on several factors including expansion within the Cities of Rialto and Fontana, land use designations, known developments and the District's past growth rate. Projected population is based on an average of 3.5 people per household as reported in the District's Water Master Plan.

The following table shows the expected population and residential connection growth as well as the projected domestic water demand for the District from the year 2005 to 2025 in five year increments.

Table 2-8
Projected Residential Growth

Year	Growth per Year (%)	Projected Population	Total Connections	Projected Domestic Demand (AF/yr)
2005		60,200	17,200	16,200
2010	5.9	80,150	22,900	21,000
2015	3	92,900	26,500	25,000 [(1)]
2020	3	107,700	30,800	29,000 [(1)]
2025	3	124,900	35,700	33,600 [(1)]

[(1)] Based on 840 gpd per connection.

2.3 Water Sources

(California Water Code Section 10631 (b))

The District obtains water from canyon surface flows on the east side of the San Gabriel Mountains, including North Fork Lytle Creek, Middle Fork Lytle Creek, and South Fork Lytle Creek. It also receives imported water supplies from the State Water Project and from 25 wells in 5 different groundwater basins. All five of the groundwater basins have been adjudicated and are managed. Relevant portions of the judgments and decrees that specify the District's water rights are provided in the appendices of this report.

The District does not at this time plan to develop any new sources of water supply. Their plan is to utilize a greater amount from each source, up to their legal rights depending on the availability of each water supply source. Currently, only the Lytle Creek Basin and Lytle Creek surface water has been fully utilized by the District as a water supply source.

Of the water supplied within the distribution system, the current mix is 69% groundwater, 20% surface water and 11% purchased water.

2.3.1 Groundwater Sources

Lytle Creek Basin

The Lytle Creek Basin was adjudicated under the 1924 Judgment No. 17,030 from the Superior Court of San Bernardino County and is managed by the Lytle Creek Water Conservation Association (made up of the successors to the stipulated parties of the judgment). The District has nine existing wells in the Lytle Creek Basin, and the right to pump and export out of the Lytle Creek Region 12,105 gpm if they are diverting their full allotment (2,290 gpm) of surface flow from Lytle Creek. If flows from the Creek are low and the District is receiving a portion of their allotment, they can pump the difference from the wells to a combined maximum of 14,395 gpm from the basin, depending on how much water is available to pump and how much water is available to divert from Lytle Creek. The District has no restrictions on how much it can pump and serve within the Lytle Creek Region, including water that will be used to supply the Lytle Creek North Planned Development which is within that Region.

The Lytle Creek Groundwater Basin has an estimated long term safe yield of 35,000 to 45,000 acre-feet per year. The basin is highly porous and easily replenished during heavy precipitation years. The depth to groundwater in the basin varies from 50 feet to 400 feet depending on whether it is a drought cycle or wet cycle. Well production in the basin varies as the basin levels change from year to year. There is no known contamination within the Lytle Basin and no contamination is expected to be detected in the future.

The actual amount that The District can extract from the basin yearly is dependent on the availability of groundwater levels within the basin. In the past, they have pumped between 10,000 AF/Yr in normal years and an estimated 5,000 AF/Yr in the most severe drought periods.

West Valley Water District and its predecessors have been utilizing the Lytle Creek Basin for water supply for nearly 100 years.

Chino Basin

The Chino Basin was adjudicated by the 1978 Judgment No. 164,327 of the Court of San Bernardino County and is managed by the court appointed Chino Basin Watermaster. The Judgment declares that the safe yield of the Chino Basin is 140,000 acre-feet. The District has a minimum of approximately 1,000 AF/Yr of extraction rights. Extractions above that amount must be replenished with SPW through a program with the Chino Basin Watermaster. Two (2) existing wells are in the Chino Basin with the capability of pumping up to 2,000 AF/Yr. During extended drought periods, the District projects that it will pump and utilize up to 1,000 AF/Yr from the Chino Basin. Should the District require additional water supply during a drought period, they would have the option of purchasing additional water supply from the Chino Basin and pay replenishment costs. The District and its predecessors have been utilizing the Chino Basin for water supply for over 40 years.

The Chino Basin consists of about 235 square miles of the Upper Santa Ana River Watershed. The Chino Basin is an alluvial valley that is mainly flat from east to west and slopes from the north to the south at a one to two percent grade. Elevations in the valley range from 2,000 feet to 500 feet at Prado Dam. It is one of the largest groundwater basins in southern California with about 5,000,000 acre-feet of water and an unused storage capacity of about 1,000,000 acre-feet.

Rialto Basin

The Rialto Basin was adjudicated under the 1961 Decree No. 81,264 from the Superior Court of San Bernardino County and is managed by the Rialto Basin Management Association (made up of the stipulated parties to the judgment). Groundwater storage capacity of the basin is about 210,000 acre-feet, with an estimated 120,000 acre-feet for the Rialto portion of the sub-basin and about 93,000 acre-feet for the Colton portion. The total storage capacity has been estimated at 2,517,000 acre-feet. The basin shows quick rises of water levels during high precipitation years and slower decline over several years.

Under normal conditions, when the basin is not in adjudication, the District has unlimited extraction rights. During drought conditions when the adjudication is in affect, their extraction right ranges from 3,067 AF/Yr in the most severe drought periods to a maximum of 6,134 AF/Yr. Since the Decree was stipulated in 1961, the least amount of water supplies that have been available to the District has been 6,134 AF/Yr. Seven existing wells are in the Rialto Basin which have the ability to extract up to 10,000 AF/Yr during normal conditions. The District and its predecessors have been utilizing the Rialto Basin for water supply for more than 80 years.

Bunker Hill Basin

The Bunker Hill Basin was adjudicated by the 1969 Judgment No.117,628 of the Court of Orange County and is managed by the court appointed Watermaster (SBVMWD and Western Municipal Water District). SBVMWD's primary function is to plan and develop a long-range water supply for water agencies within the upper Santa Ana River Basins. These two agencies have adopted a Regional Water Facilities Master Plan that manages the Bunker Hill Basin.

The objectives of the Master Plan are captured in the following Mission Statement:

"*Develop regional facilities to allow coordinated management of available water resources to meet the ultimate quantity and quality requirements of all water purveyors in the District, and increase the reliability of supplies by maximizing the use of local water resources and optimizing the use of imported water. The regional facilities should be cost effective, and be developed in a systematic, phased program with the cooperation of the water purveyors.*"

The District has restrictions on pumping and exporting from certain areas of the basin as is defined in the 1924 Judgment for the Lytle Creek Region and will be defined in a future City of San Bernardino Municipal Water Department's Basin Management Ordinance (this ordinance is expected to restrict the location of new wells, and amounts of overall pumping from the Bunker Hill Basin within the area defined by the expected Management Ordinance). The District has two existing wells in the Bunker Hill Basin within the defined area of the 1924 Judgment for the Lytle Creek Region. In addition to its two existing wells, they have a contract with SBVMWD for up to 5,000 AF/Yr from the Bunker Hill Basin. The District plans to extract up to a maximum of 15,000 AF/Yr during extended drought conditions and has plans for over 20 mgd of capacity in transmission pipelines within the next several years from the Bunker Hill Basin to their service area. The District and its predecessors have been utilizing the Bunker Hill Basin for over 50 years.

It is estimated that there is as much as 1.6 trillion gallons of water in the basin, with sufficient supply for many consecutive drought years without any natural recharge. Historically, ground water pumping within this basin has been partially controlled by a court judgment, which determined that the safe yield for the Bunker Hill Basin was 232,100 acre-feet per year. It is believed that this control on pumping, combined with State Project Water deliveries and annual rainfall is sufficient to replenish the basin storage level for all potential future demands. Plumes of various chemical pollutants have been detected in the Bunker Hill groundwater basin requiring installation of treatment or blending.

In addition to the District's groundwater wells, the District acquired an additional water supply on January 1, 1990 when they entered into a 20 year agreement with provisions to extend up to an additional 30 years on a cost proportionate basis with the SBVMWD, City of Rialto, and Riverside Highland Water Company to drill two wells in the Bunker Hill Basin and construct a 48" diameter transmission main. This project, referred to as the Baseline Feeder, started delivering water to the District in November 1990. This agreement is for 5,000 acre-feet per year of supplemental water to the District's existing supplies. The District owns up to 20 million gallons per day of transmission capacity in the Baseline Feeder.

North Riverside Basin
The North Riverside Basin is part of the 1969 Judgment No. 117,628, under the Bunker Hill Basin. The Riverside Groundwater Basin is a large alluvial fill basin that is bounded by major faults and topographic barriers. Recharge to the basin occurs by the underflow from basins to the north, contributions from the Santa Ana River, and from percolation of surface water runoff from the surrounding uplands, in particular the Box Spring Mountains to the east. The ultimate average year safe yield of the basin is 33,729 AF/Yr.

The District has five existing wells in the North Riverside Basin with no extraction restrictions. Extraction of 3,000 AF/Yr to 5,000+ AF/Yr from the North Riverside Basin is projected without depleting the groundwater basin. The District and its predecessors have been utilizing the North Riverside Basin for water supply for more than 60 years.

2.3.2 Surface Water Sources

Lytle Creek
Surface water from Lytle Creek was adjudicated under the 1924 Judgment No. 17,030 from the Superior Court of San Bernardino County and is managed by the Lytle Creek Water Conservation Association. The District has the right to divert and export out of the Lytle Creek Region 2,290 gpm when it is available. They also have the right to purchase an additional 1,350 gpm of Lytle Creek flows through an agreement with the City of San Bernardino (San Bernardino is not able to utilize their surface water flows), which is treated at the Oliver P. Roemer Water Filtration Facility. The District also utilizes Lytle Creek surface water flows for groundwater recharge in the Lytle Creek Basin and to supply non-potable customers. They have been able to utilize up to 5,500 AF/Yr during normal times from Lytle Creek surface flows and a minimum of 3,000 AF/Yr during severe extended drought conditions. The District and its predecessors have been utilizing Lytle Creek surface flows for water supply for more than 130 years.

State Water Project
The District has an agreement with the San Bernardino Valley Municipal Water District to purchase up to 20 mgd of water from the State Water Project through the Lytle Turnout off the San Gabriel Feeder Pipeline to utilize for groundwater recharge in the Lytle Creek Basin, to produce potable water from their Oliver P. Roemer Water Filtration Facility, and supply non-potable customers. The District has been utilizing water from the State Water Project through the Lytle Turnout since 1999.

The District plans to utilize a greater amount of SPW in the future. This additional supply will be treated at the Oliver P. Roemer Facility as well as the Lytle Creek North Planned Development.

The different water supply sources in the following table show ranges for yearly amounts of water supply that the District can reasonably expect from their water rights and the District's ability to utilize these water supply sources.

Table 2-9
Existing and Potential Water Supply Sources

SOURCES	Maximum when available WATER RIGHT	Range of PRODUCTION POTENTIAL in 2025 Approximate Max. to Min. (AF/Yr)
Lytle Creek Surface Water (1)		
Existing	5.09 cfs	3,500 to 2,000
City of San Bernardino (purchase)	3.00 cfs	2,000 to 1,000
State Project Water (purchased)	No Limit	23,000 (2)
Ground Water		
Lytle Creek Basin (3)	12,105 gpm	10,000 to 5,000
Rialto Basin (4)	No Limit / 3,067 AF/yr	10,000 to 3,067
Chino Basin	No Limit	3,000 to 1,000
North Riverside Basin	No Limit	5,000 to 3,000
Bunker Hill Basin	No Limit	
Existing Wells		6,000 to 3,000
Future Wells		10,000 to 6,000
SBVMWD/Baseline Feeder (6)		10,000 to 6,000
TOTALS		**82,500 to 53,067**

(1) The amount of purchased SPW depends on the availability of Lytle Creek Water and the combined treatment capacity of the existing Oliver P. Roemer WWF, the proposed expansion and the North Villages WFF. The combined total for surface water treatment capacity is projected to be 26.4 mgd during normal conditions. Of the 26.4 mgd The City of Rialto owns 1.5 mgd capacity in the Oliver P. Roemer WFF.

(2) The number shown for purchased SPW reflects the amount of water that can be utilized at the Districts Water Filtration Facilities in the year 2025. The state water contractor (SBVMWD) has an 82% reliability of receiving 39,000 AF/Yr of SPW. The Districts minimum projected share of that is 7,000 AF/Yr. During a drought that reduces the available SPW allotment for SBVMWD, all of the water agencies receiving water from them will share in the deficit of the water budget on a percentage basis. It is highly unlikely that a drought in Northern California will coincide with a drought in Southern California.

(3) During extended drought periods, well production in Lytle Basin is projected to be 50% of normal conditions or less.

(4) The Rialto Groundwater Basin has perchlorate contamination problems that severely limit current production and is used mainly for standby purposes only. Perchlorate contamination is projected to be remediated for ultimate.

(6) The carrying capacity of the Baseline Feeder is limited to 14,000 gpm for WVWD. 1991 Agreement between District and SBVMWD.

2.3.3 Past Basin Production

The District's use of the different water supply sources depends on its daily demand which varies from winter to summer. If wells are not in service for maintenance or repair, WVWD has the ability and right to pump its wells up to 24 hours per day.

Table 2-10
Amount of Groundwater Pumped (AF/Yr)

Basin	2000	2001	2002	2003	2004
Lytle	7,335	7,201	7,157	6,476	7,178
North Riverside	2,224	2,355	3,198	4,135	3,335
Rialto	999	1,274	2,695	3,383	4,402
Bunker Hill	752	586	1,582	1,424	832
Chino	0	0	276	0	35
Total Well Supply	**11,310**	**11,416**	**14,908**	**15,418**	**15,782**
Total Production	**20,248**	**19,698**	**20,655**	**21,558**	**22,734**
% of Total Water Supply	**56%**	**58%**	**72%**	**72%**	**69%**

The annual amount of groundwater pumped for the past five years represents the District's production capacity during the most severe of drought conditions. The District's wells in 2004 were reported to be at the lowest pumping levels recorded. In order to continue production from several of the wells, the District lowered pumps, and replaced motors and columns. This enabled the District to provide sufficient groundwater to meet system demands.

2.3.4 Projected Basin Production

Above average rainfall during the winter of 2004/2005 has recharged groundwater basins back to levels seen in average water years. The District's well capacity will increase above that seen in recent years, enabling them to provide sufficient supply to meet the projected demands.

Table 2-11
Current and Planned Water Supplies (AF/Yr)[1]

	9/2003 to 9/2004	2010	2015	2020	2025
Lytle Basin	6,680	10,000	10,000	10,000	10,000
North Riverside Basin	4,020	6,000	8,000	6,000	5,000
Rialto Basin	4,890	10,000	10,000	10,000	10,000
Bunker Hill Basin	3,450	10,000	12,000	15,000	25,000
Chino Basin [2]	0	3,000	3,000	3,000	3,000
Total Well Supply	19,040	39,000	43,000	44,000	53,000
% of Total Water Supply	78%	66%	68%	66%	65%
Lytle Creek Surface	4,060	5,500	5,500	5,500	5,500
State Project Water	1,310	15,000	15,000	17,000	23,000
TOTAL	**24,410**	**59,500**	**63,500**	**66,500**	**81,500**

[1] Based on 16 hr/day pumping.
[2] Should the District require additional supplies, they have the option of purchasing water from the Chino Basin.

Due to drought conditions, the District has been preparing to shift its main source of supply from the Lytle Creek Basin to the Bunker Hill Basin which is not affected as much during droughts. The District plans to drill additional wells in the Bunker Hill Basin to meet future demands. The Bunker Hill Basin which has a safe yield of 232,100 acre-feet per year contains sufficient supply for many consecutive drought years without any natural recharge. With the construction of these wells and the planned water supply projects as outlined in Section 2.9, the District is projected to have sufficient groundwater available to meet future demands.

2.4 Reliability of Supply

(California Water Code Section 10631 (c))

As with all water supplies in Southern California, the District's water supply is vulnerable to chemical contamination and to seasonal and climatic changes within the area based upon precipitation patterns and may vary substantially from one year to the next.

Lytle Creek, which is a perennial stream in the upper watershed, provides a local surface water supply to the area. Water from Lytle Creek is treated by the District for domestic water use at their Oliver P. Roemer Water Filtration Facility. Surface flows fluctuate seasonally and the District's water rights could be prorated whenever Lytle Creek flow is below 800 miner inches (16 cubic feet per second (cfs)). Southern California Edison's records, for the past 30 years, indicate that the average flow for the summer months is 17 cfs and for the winter months is 37 cfs. Approximately ten days in the summer, Lytle Creek surface water flow will drop below 16 cfs which causes the District's water rights to be subject to proration. In addition to the flow fluctuation, the turbidity of Lytle Creek's surface water also varies seasonally. Southern California Edison (SCE) will shut down their power generation whenever the water turbidity exceeds their operation limit due to high runoff. This in turn will cause the Oliver P. Roemer Water Filtration Facility to be shut down.

The Lytle Creek Basin, which is recharged by water from the Lytle Creek watershed, is subject to extreme fluctuations based on precipitation in the watershed and has experienced up to 400-foot drops in groundwater levels with a subsequent loss of up to 50% of the Lytle Basin's potential as a water supply source.

The Rialto Basin has a perchlorate contamination plume that has reduced its potential from over 6,300+ acre-feet per year to a projected 3,067 acre-feet per year until there is an economical and practical treatment process for safely removing perchlorate from drinking water.

The Bunker Hill Basin has fluctuated up to 100 feet in groundwater levels from drought cycles to above normal precipitation cycles. The groundwater basin is expected to be a reliable long term water supply source even in drought periods. The Bunker Hill Basin is expected to make up any short fall in water supply that could be caused by a long term drought.

The North Riverside and Chino Basins do not appear to be affected by drought cycles. The North Riverside Basin has a projected safe yield of 33,729 AF/Yr. The City of Riverside which has not as yet utilized their 21,085 AF/Yr extraction rights within the Basin, is expected to in the future. This would then leave 12,644 AF/Yr available between four local water purveyors. The District's portion is estimated to be 5,000 AF/Yr.

The District is also planning to construct a 4.0 mgd water filtration facility (ultimate capacity of 6.0 mgd) that will be located in the Lytle Creek North Planned Development. This facility will utilize SPW supplied through the existing Glen Helen Turnout from the San Gabriel Feeder.

In addition to the new water filtration facility located at the Lytle Creek North Planned Development, the District plans to construct a second water filtration facility adjacent to the Oliver P. Roemer Water Filtration Facility which will treat an additional 6.0 mgd. This facility (Phase III) will consist of additional membrane filtration capacity, UV disinfection, and GAC contactors. This addition will expand production capacity at the Oliver P. Roemer Water Filtration Facility to 20.4 mgd.

The working draft of the 2005 State Water Project Delivery Reliability Report projects a minimum delivery of 5% of full entitlement compared to 20% in the SWP Delivery Reliability Report 2002 for a single dry year in Northern California. During an average water year in Northern California, they are projecting 69% to 77% of contracted deliveries. During a two to four year drought in Northern California, projections range from 38% to 43% between 2005 and 2025. In 75% of the years the annual SPW delivery is estimated to be at or above 65% and in 25% of the years the delivery is 100%. The District is projected to utilize between 1,000 AF/Yr under the most severe drought conditions for Northern California and up to 23,000 AF/Yr during drought conditions in Southern California.

2.4.1 Basis of Water Year Data

The basis for the water year data used for the supply reliability assessment is from USGS surface water data collected from the Lytle Creek watershed, from available historic data provided by the District and from information within the District's 1996 and 2004 Water Master Plan. The normal water year selected represents an average groundwater pumping year in terms of gpm production from the existing wells at that time.

Table 2-12
Basis of Water Year Data for Local Supply

Water Year Type	Base Year		
Normal Water Year [1]	1996		
Single-Dry Water Year	2000		
Multiple-Dry Water Years	2002	2003	2004

[1] The normal year selected of 1996 represents the average historical annual mean stream flow of Lytle Creek from data collected from 1919 to 2003 and represents an average pumping year for the District. The District's 2004 Water Master Plan (Well Pumping Facilities Designation) refers to 1996 as Normal Conditions.

Due to the size of the groundwater basins utilized by the District, a single dry year will not affect well production. Surface flow, however, during a year without rainfall can be significantly affected.

During a single dry year in Northern California (as seen in 1977) SPW delivery could be as low as 5% of normal supply. State Water reliability is based on the 2005 Reliability Report. **Droughts in Northern California (location of SPW supply) do not usually coincide with drought periods in Southern California.**

The region has been experiencing a drought that started in 1999 and continued until late 2004 causing water levels in the basins to decline. By 2004, levels in the Lytle Basin were the lowest the District has seen. For this reason the multiple dry years of 2002, 2003, and 2004 were selected. Delivery of SPW during a four-year drought as seen in 1931 through 1934 is projected to be 33% of normal supply.

The following table lists the existing water supply sources and projected availability of each of the sources during a single-dry year and multiple-dry years.

Table 2-13
Supply Reliability

	Average / Normal Water Year (1996)	Single Dry Water Year	Multiple Dry Water Years		
			Year 1 (2002)	Year 2 (2003)	Year 3 (2004)
Lytle Creek Basin	% of Normal	95	70	65	60
North Riverside Basin	% of Normal	100	100	90	80
Rialto Basin	% of Normal	95	90	86	83
Bunker Hill Basin [1]	% of Normal	95	70	60	53
Chino Basin	% of Normal	100	100	95	90
Lytle Creek Surface	% of Normal	55	80	70	60
State Project Water [2]	% of Normal	5	33	33	33

[1] Water from the Bunker Hill Basin includes water purchased through the Baseline Feeder.
[2] Droughts in Northern California (location of SPW supply) do not usually coincide with drought periods in Southern California. The SPW numbers are based on projected availability in 2025.

The annual amount produced in past normal, single dry, or multiple dry water years from a basin does not give an accurate representation of potential basin production. Factors such as lower system demand, cost of pumping, inoperable wells, pumping duration, replenishment costs, water quality, cost of supply and the ability to treat water all affect annual basin production numbers. The District will analyze all of these factors to determine the most economical source of supply to use. **Additional wells, system operation, water rights and safe basin yields will impact basin production figures in the future.** The basis for comparison used was pumping capacity in gpm. Well capacities in 1996 (normal water year) were compared to their capacities in 2004 (multiple dry water year).

Production from wells located in the Lytle Basin saw a 60% reduction in supply but would have been less had it not been for the District changing motors and pumps in these wells to increase their production capacity as the groundwater in this basin declined. The 53% reduction of normal supply for the Bunker Hill Basin also reflects declining groundwater levels. The District did not lower pumps and motors on wells in this basin but could do so to increase production.

The District's normal operating practice is to pump their wells 16 hours a day during off peak hours to take advantage of Southern California Edison's time of use rate. If, for some reason, wells are not in service (maintenance or repair), the District has the ability and right to pump its wells up to 24 hours per day. As shown in Table 2-3 the District has 42.54 mgd production capability from all of its wells in operation 24 hours per day. The District also has 9.6 mgd capacity in its Oliver P. Roemer WFF and 4.0 mgd in purchased water supplies through the Baseline Feeder. The three water sources have a combined production capacity of 56.14 mgd. With its largest water supply source out of service (Oliver P. Roemer Water Filtration Facility at 9.6 mgd), the District has the ability to supply up to 46.54 mgd. Due to the recharge of the basins, the production capacity of the District's wells will increase above those shown in Table 2-3.

2.5 Transfer and Exchange Opportunities

(California Water Code Section 10631 (d))

The District currently has interconnections with Fontana Water Company, the Cities of Rialto, Colton, and San Bernardino, and SBVMWD. The connections with Fontana Water Company are currently not in use but an exchange or transfer of water could be provided for emergency supplies. The District has four interconnections with the City of Rialto. The City of Rialto can take water from two locations and the District can take water from the City of Rialto's water system at two locations. The Cedar Avenue connection is the delivery point for the City of Rialto's Lytle Creek surface water entitlement. Previous to the upsizing of this connection, the City of Rialto received its share of Lytle Creek surface water directly from the Oliver P. Roemer Water Filtration Facility. In addition to the interconnections that the District has, they also purchase 1,350 gpm of Lytle Creek surface flow from the City of San Bernardino which is treated at the Oliver P. Roemer Water Filtration Facility.

The District, in a joint venture with the City of Rialto and SBVMWD constructed 25,000 feet of 48-inch transmission line known as the Baseline Feeder. Through an agreement with SBVMWD, the District can be provided up to 5,000 acre-feet per year of supply through this transmission line. The District has two wells connected to the Baseline Feeder that can pump 5,000 gpm into this system. Supplemental water could be provided by the City of San Bernardino through the Baseline Feeder if contracts for such an exchange were prepared.

2.6 Water Use by Customer - Past, Current and Future
(California Water Code Section 10631 (e))

The following table shows the past, current and projected water use within the District in five year increments for single family residential, commercial, agricultural, and wholesale. The single-family demand shown includes multi-family usage.

Table 2-14
Water Use by Customer - Past, Current and Future (AF/Yr)

Year		Single Family	Comm.[1]	Agri.[1]	Construction Hydrant Meter[2]	Sales to Marygold Mutual Water Company	Water Loss	Total
2000[3]	# of Accounts	15,487	801	22	N/A	0	N/A	16,310
	Deliveries (AF/Yr)	14,542	3,212	685	N/A	0	1,809	20,248
2001[3]	# of Accounts	16,061	364	22	N/A	0	N/A	16,447
	Deliveries (AF/Yr)	14,951	2,928	631	380	0	808	19,698
2002[3]	# of Accounts	16,855	461	24	N/A	0	N/A	17,340
	Deliveries (AF/Yr)	15,349	2,570	664	311	0	1,761	20,655
2003[3]	# of Accounts	16,957	479	24	N/A	1	N/A	17,461
	Deliveries (AF/Yr)	15,400	2,454	629	424	242	2,409	21,558
2004[3]	# of Accounts	16,742	474	29	N/A	1	N/A	17,246
	Deliveries (AF/Yr)	15,199	5,156	419	563	1,448	N/A	22,785
2010	# of Accounts	22,900	566	35	N/A	1	N/A	23,502
	Deliveries (AF/Yr)	21,000	3,537[4]	994	619	1,500	2,350	30,000
2015	# of Accounts	26,500	656	40	N/A	0	N/A	27,196
	Deliveries (AF/Yr)	25,000	4,101	1,136	613	0	2,850	33,700
2020	# of Accounts	30,800	761	47	N/A	0	N/A	31,608
	Deliveries (AF/Yr)	29,000	4,754	1,335	611	0	3,300	39,000
2025	# of Accounts	35,700	882	54	N/A	0	N/A	36,636
	Deliveries (AF/Yr)	33,600	5,511	1,534	605	0	3,750	45,000

[1] Estimated future Commercial and Agricultural connections projected at 3% growth per year. The agricultural demand takes into account additional demands such as irrigation for freeway landscape, public utility corridor, schools and parks.
[2] Hydrant Meter projections where based on 2004 usages.
[3] Information in the above table was obtained from the District's Public Water System Statistics Reports submitted to the Department of Water

Resources for the Calendar Years 2000 through 2004.

(4) Projections based on 2003 Commercial usage and known commercial development that will occur within this time frame.

The District began supplying Marygold Mutual Water Company (MMWC) with supplemental water in July of 2003. Monthly supply has ranged from 28 acre-feet to 156 acre-feet. There is no formal agreement between the two agencies and the District could discontinue service if supplies are not available. The above table projects 1,500 AF/Yr supply to MMWC up to the year 2010. MMWC is constructing their own wells to supply groundwater to meet their demand and will not need supplemental water from the District beyond 2010.

Unaccounted for water within the District is approximately 8% annually. This percentage was then used to project future unaccounted for water losses within the system.

The demands shown in Table 2-14 include the projected demands for residential, commercial, industrial, agricultural, construction hydrant meters, and unaccounted for water losses within the system in five year increments through the year 2025. The District is projected to require 30,000 AF in 2010, 33,700 AF in 2015, 39,000 in 2020 and 45,000 AF by 2025.

2.7 Demand Management Measures

(California Water Code Section 10631 (f))

The District is not a member of the California Urban Water Conservation Council and does not have a Best Management Practice Report to accompany this report. The following section identifies the water demand management measures currently being implemented or scheduled for implementation by the District.

Water in the City of Rialto (City) is provided by both the City and the District. Water conservation programs and incentives offered by the City will also benefit the District. In order to assess the effectiveness of these programs and their contribution to the reduction of consumption within the District, data would need to be obtained from the City of Rialto. Currently the City does not track that data and therefore the District does not have a means of evaluating the effectiveness of these programs. Without this data, an estimate of the existing conservation savings on the water use within the system cannot be given. The District will make additional efforts to obtain and monitor this information for future reference and analysis.

The savings that are being realized by the demand management measures currently implemented will not effect the ability to further reduce demand. A request by the District to further reduce consumption within the service area would be possible. People are generally receptive to reducing consumption if the need to conserve is stressed. This reduction however may only be for a short duration.

The following data is based on information from District staff and from Article 24 entitled Water Conservation of Ordinance 68. This article describes the District's various measures presently being implemented. A copy of Article 24 - Water Conservation is provided in the Appendices.

(A) Water Survey Programs

The District does not perform water use surveys for their customers and has no plans to implement such a program.

(B) Residential Plumbing Retrofit

As a condition of continued water service, existing structures not so equipped, which require building permits to remodel or expand, shall be retrofitted with low-flow showers and faucets. Certification of compliance with Ordinance 68 shall be forwarded to the District.

As a condition of water service, all new structures shall be equipped with low-flow showers and faucets as per Title 24, Part 6, Article 1, T20-1406F of the California Administrative Code, in addition to the insulating of all hot water lines according to California Energy Commission Rules.

(C) System Water Audits, Leak Detection, and Repair

The District performs an annual audit to determine unauthorized and unaccounted for water losses. System meters are read and tabulated for water production and sales, and estimates are made of authorized unaccounted for water, such as: main flushing, construction uses, street cleaning, main breaks, and leaks.

Customer's Side - District personnel investigate high water bills at the customer's request. It has been the District's experience that in most situations, the cause of the unusual water use will consist of obvious malfunctions in plumbing fixtures such as toilets and sinks which can easily be corrected. This may indicate a need to better educate customers on the impact of seemingly small, but continuous leaks when they are occurring.

Valve Exercise Program - A valve exercising program can reduce water loss by identifying system valves in need of repair, or those which are improperly set. The District's crew operates system valves periodically, but does not have a regular scheduled program at this time.

(D) Metering with Commodity Rates and Retrofit of Existing Connections

All new and existing customer water services within the District are metered. It has been adequately illustrated that the metering of water services is a sure method of reducing total water use.

The existing base rate commodity charge within the District is $0.80 per 100 cubic feet and $1.20 per 100 cubic feet outside of the District.

Meter Calibration and Replacement Program. The District calibrates meters before placing them into service. Inoperative and inaccurate meters can contribute to an increased percentage of unaccounted for water. The District does minimal repairs in the field, instead meters are replaced.

The District has also implemented a new program to convert all meters within the system to Automated Remote Reading (ARM) by converting 1,000 meters per year.

(E) Large Landscape Conservation Program

The District offers financial incentives to improve landscape water use efficiency. Three irrigation commodity rates are offered within the District, including gravity irrigation water, pressure irrigation, and water for golf courses.

Irrigation Water (includes gravity) - Commodity Charge .40/100 cu.ft.

Pressure Irrigation - Commodity Charge .57/100 cu.ft.

Golf Courses - Commodity Charge .50/100 cu.ft.

Large water users, as determined by the District, are required to submit a water conservation plan to the District and implement it as a condition of continued service.

The use of lawns shall be minimized in new commercial, hotel, condominium, and high-density housing and shall be subject to District review and conditioning of projects.

The use of native or water-conserving trees, shrubs, lawns, grass, ground cover, vines, and other plant species for landscape planting or replanting purposes is required and shall be approved by the District. (A list of such plants can be obtained at the District office.)

(F) High-Efficiency Washing Machine Rebate Program

The Board of Directors has just authorized funds to implement a High-Efficiency Washing Machine Rebate Program. The details regarding incentives and or replacements have not been finalized and therefore this information is not available at this time. Implementation of this program is scheduled for 2006.

(G) Public Information Programs

To promote voluntary conservation, the District has initiated a public awareness and education plan.

- The District sponsors an annual poster coloring contest at local elementary schools where the students are required to draw a poster with a water conservation theme.

- Tours of the Oliver P. Roemer WFF are conducted with the local schools to educate today's youths on water conservation and awareness.

- Pamphlets, brochures, and stickers are distributed stressing the reasonable utilization of resources and explain that the quality of life need not suffer from the use of conservation techniques.

- The District provides each service customer with data on water use during the similar period from the previous year. Customers will use the data to informally evaluate the results of their conservation efforts taking into consideration climatic difference, exact billing period length, and any changes they have made to their households which could affect water consumption.

- A yearly Consumer Confidence Report which illustrates the quality of water provided by the District is posted on the District's web site and is distributed to customers.

(H) School Educational Programs

As previously mentioned, the District provides tours of the Oliver P. Roemer WFF for the local schools to educate today's youths on water conservation and awareness. The District also participates at the local State College Cal State Expo.

(I) Conservation Programs for Commercial, Industrial, and Institutional Customers

The District currently reviews the intended water usage of all new large water customers. They also provide non-potable industrial process water at a reduced rate. When non-potable sources are available, the District will use this source for development construction water such as SPW.

(J) Wholesale Agency Programs

SBVMWD has a web site that has links to water conservation measures. One link is a guide on lawn watering which shows customers how to determine the output of their sprinklers and suggests irrigation duration. Other links provide helpful hints to conserving water and even a water trivia page.

(K) Conservation Pricing

The District does not currently encourage conservation through a tiered rate water pricing system. A reduced price for dedicated irrigation water is in place.

Table 2-15
Irrigation Water Rates

User	Commodity Charge 100 Cubic Feet
Demand and Gravity Irrigation	$0.40
Pressure Irrigation	$0.57
Golf Course	$0.50
Domestic (in District)	$0.80

(L) Water Conservation Coordinator

The District does not have a dedicated conservation coordinator. Water conservation projects and programs are performed by members of the District's staff through engineering committee meetings of staff and Board members.

(M) Water Waste Prohibition

The District through Ordinance 68, Article 24, 2404. STAGE 1 - Normal Condition, lists uses of water considered non-essential to the public health, safety and welfare and, if allowed, would constitute the wasting **of water which is** prohibited, pursuant to Water Code Section 350 et seq., Water Code Section 71640 et. Seq., and the common law.

(N) Residential Low Flush Toilet Program

As a condition of water service, all new structures shall be equipped with ultra low-flush toilets (1.6 gallons per flush max) as per Section 17921.3 of the California Health and Safety Code.

As a condition of continued water service, existing structures not so equipped, which require building permits to remodel or expand, shall be retrofitted with toilet tank dams resulting in 1.6 gallon flushes unless the toilets are to be replaced, in which case the new toilets shall be ultra low-flush (1.6 gallons per flush max). Certification of compliance with Ordinance 68 shall be forwarded to the District.

2.8 Evaluation of Demand Management Measures Not Implemented
(California Water Code Section 10631 (g))

Of the 14 Demand Management Measures discussed in Section 2.7 (A-N) the District is currently implementing 12 and plans to implement the 13th "High-Efficiency Washing Machine Rebate Program" in 2006. The only Demand Management not being considered by the District at this time is the "Water Survey Program." The environmental, social, health, customer impact and technological factors of this measure is discussed below.

Water Survey Program - The overall goal of such a program is to motive customers to use water more wisely and to participate in conservation programs. The program would bring to light methods to conserve water and reduce water bills.

- Environmental Impact is positive. Less water will be used.
- Social Impact is positive, as people are reminded of water conservation, and their 'water consciousness' will be raised.
- There are no adverse Health and Safety Impacts.
- Customers will have reduced water bills following the implementation of the response to the survey.
- There are no Technological Factors involved.
- The Cost to implement such a program would include mailers that would be sent to customers, field personnel to perform the survey and the time to evaluate and respond back to the customer.
- The Benefit to the District would be the reduced demand resulting in lower supply, O&M and treatment costs.

A Water Survey Program for single-family and multifamily residential customers as outlined by the Department of Water Resources would require the District to check for leaks, including toilets, faucets, and water meters at each customer's home. The District would also have to check flow rates of shower heads and toilets along with an inspection of the customer's irrigation system and timers. A review of the customer's irrigation schedule and measuring the landscape area would also be required. This information would then have to be analyzed and the customer would need to be provided an evaluation of their existing water consumption habits and water saving recommendations would need to be supplied.

The District is not staffed for such a program. This sort of program requires both office and field personnel to perform the

survey, analyze the data and respond with survey results. The anticipated water savings gained by such a program would not cover the costs to implement it.

2.9 Planned Water Supply Projects and Programs
(California Water Code Section 10631 (h))

The District plans to utilize a greater amount from each of their supply sources, up to their legal rights and availability from each source. Currently, only the Lytle Creek Basin and Lytle Creek surface water has been fully utilized by the District.

The 2004 Water Master Plan s Capital Improvement Plan recommended additional wells to be equipped and drilled. Expansion of the Oliver P. Roemer Water Filtration Facility (now under construction for an additional 4.8 mgd capacity) was substituted for drilling of new wells in the Bunker Hill Groundwater Basin for the time period of 2002 to 2005. To meet the future demands within the system the District has several proposed wells planned for various areas within the distribution system beyond the five-year Capital Improvement Plan.

Groundwater is not the only future supply source to be utilized by the District to meet the anticipated future demands within the system. The District is planning to construct a 4.0 mgd Water Filtration Facility located in the Lytle Creek North Planned Development. This water filtration facility would take SPW through the existing Glen Helen Turnout off the San Gabriel Feeder. The ultimate treatment capacity would be 6.0 mgd.

In addition to the new water filtration facility located at the Lytle Creek North Planned Development, the District plans to construct a second water filtration facility adjacent to the Oliver P. Roemer Water Filtration Facility which could treat an additional 6.0 mgd of SPW. This facility (Phase III) will consist of additional membrane filtration capacity, UV disinfection, and GAC contactors. This addition will expand production capacity at the Oliver P. Roemer facility to 20.4 mgd.

The following table outlines the future water supply projects being considered by the District. These projects are located throughout the District's eight pressure zones. The exact construction time frame of the projects is not known at this time and will commence when the District feels demand in this zone requires additional supply.

The projected AF/Yr supply from the projects is based on 16 hours per day, pumping 365 days a year. Although this is what is projected from the source, it is unlikely that any of these sources will be in operation for that length of time. Factors such as water quality, basin entitlements, system demands, cost of imported water, maintenance schedules and pumping costs will dictate what sources the District will use. Additionally, the production capacities from the future water supply projects are not additive. Existing and future adjudications will limit basin production numbers.

Table 2-16
Future Water Supply Projects

Project Name	Water Supply Source	Projected Completion Date	Normal Year [1] (AF/Yr)	Single-Dry Year [1] (AF/Yr)	Multiple Dry Water Year [1]		
					Year 1 (AF/Yr)	Year 2 (AF/Yr)	Year 3 (AF/Yr)
Rehab W-17	Rialto Basin	2004/05	1,260	1,000	1,000	1,000	1,000
Drill Equip Well W35A	Lytle Basin	2004/05	900	800	800	625	450
Equip Well W-54	Rialto Basin	2004/05	780	700	700	685	670
Drill Equip Well W-55	Bunker Hill Basin	2005/06	1,500	1,000	1,000	500	0
Drill Equip Well W-	Bunker Hill	2005/06	3,000	2,700	2,700	2,700	2,800
Equip existing Well W-39 w/ wellhead treatment	Chino Basin	2005/06	1,075	1,075	1,075	1,075	1,075
Equip existing Well W-40w/ wellhead treatment	North Riverside Basin	2005/06	1,570	1,400	1,400	1,200	1,000
Expand and upgrade existing Filtration Facilities (Phase I	State Water Project	2005/06	5,377	During a drought that reduces the available SPW allotment for SBVMWD, all of the water agencies receiving water from them will share in the deficit of the water budget on a percentage basis.			
Construct North Village Filtration Facility (Phase I-4.0 mgd)	State Water Project	2007/08	4,480	During a drought that reduces the available SPW allotment for SBVMWD, all of the water agencies receiving water from them will share in the deficit of the water budget on a percentage basis.			
Drill Equip Well W-43	Bunker Hill Basin	2006/07	3,000	2,700	2,700	2,400	2,100
Drill Equip Well W-	Bunker Hill	2007/08	3,000	2,700	2,700	2,400	2,100

Project Name	Water Supply Source	Projected Completion Date	Normal Year [1] (AF/Yr)	Single-Dry Year [1] (AF/Yr)	Multiple Dry Water Year [1]		
					Year 1 (AF/Yr)	Year 2 (AF/Yr)	Year 3 (AF/Yr)
44	Basin						
Drill Equip Well W-	Bunker Hill	2007/08	3,000	2,700	2,700	2,400	2,100
Drill Well W-19A	North Riverside Basin	N/A	2,130	1,900	1,900	1,700	1,500
Drill Well W-29A	North Riverside Basin	N/A	1,570	1,570	1,570	1,570	1,570
Drill Well W-38	North Riverside Basin	N/A	2,020	1,800	1,800	1,600	1,400
Drill Well W-39	Chino Basin	N/A	1,075	1,020	1,020	970	915
Drill Well W-47	Bunker Hill Basin	N/A	3,000	2,700	2,700	2,400	2,100
Drill Well W-48	Bunker Hill Basin	N/A	3,000	2,700	2,700	2,400	2,100
Drill Well W-49	North Riverside	N/A	2,130	1,900	1,900	1,700	1,500
Drill Well W-50	North Riverside Basin	N/A	2,130	1,900	1,900	1,700	1,500
Drill Well W-51	North Riverside Basin	N/A	2,130	1,900	1,900	1,700	1,500
Drill Well W-52	North Riverside Basin	N/A	2,130	1,900	1,900	1,700	1,500
Drill Well W-56	Bunker Hill Basin	N/A	1,770	1,000	1,000	600	0

[1] Estimated production capacity based on 16 hour per day pumping.
N/A = Not Available.

2.10 Development of Desalinated Water
(California Water Code Section 10631 (i))

The District is a considerable distance from the coast. There is no opportunity for development of desalinated or brackish water.

2.11 Current or Projected Supply
(California Water Code Section 10631 (k))

The District receives wholesale water from two sources. SBVMWD provides the District with groundwater from the Bunker Hill basin through the Baseline Feeder and SPW through the Lytle Turnout off from the San Gabriel Feeder Pipeline.

The District receives water through the Baseline Feeder under a 20 year agreement with provisions to extend up to an additional 30 years on a cost proportionate basis with the SBVMWD. The agreement provides up to 5,000 AF/Yr of supplemental water from the Bunker Hill Basin to the District's existing supplies.

The SPW is utilized for groundwater recharge in the Lytle Creek Basin, to produce potable water from their Oliver P. Roemer Water Filtration Facility, and supply non-potable customers. Additional supplies of SPW for treatment at the Oliver P. Roemer Water Filtration Facility and the Lytle Creek Water Filtration Facility will be utilized in the future, as well as additional supplies through the Baseline Feeder. The Baseline Feeder supply is a back-up in the event the SPW feeder line or the Oliver P. Roemer Water Filtration Facility is out of service. The following table represents the amount of SPW the District will be able to treat and utilize from their water filtration facilities (94% of the time) minus the anticipated Lytle Creek surface flow.

Table 2-17
SPW Projections Provided to Wholesale Provider (AF/Yr)

Wholesaler	2010	2015	2020	2025
San Bernardino Valley Municipal Water District (SBVMWD)	15,000	15,000	17,000	23,000

The District has provided written projections of SPW to SBVMWD for the next 20 years in 5-year increments as shown in the table above. As of the adoption of this report by the District's Board of Directors, SBVMWD has not provided written water availability projections for the next 20 years, of supply during a normal, single-dry or multiple-dry water years for the District, but has provided information regarding the reliability of their SPW allotment. During a drought that reduces the available SPW allotment for SBVMWD, all of the water agencies receiving water from them will share in the deficit of the water budget on a percentage basis.

SECTION THREE

DETERMINATION OF DEMAND MANAGEMENT MEASURE IMPLEMENTATION

3.1 Evaluation of Water Demand Management Measures
(California Water Code Section 10631.5)

Under normal conditions (Stage I), the District implements the measures described in Section Two, 2.7 Demand Management Measures including: metering of all users, distributing public information, school education, annual water audit, and those measures described in the District's Ordinance No. 68, Article 24 - Water Conservation.

The District's water production during the recent droughts has been sufficient to supply customer demands. The District has not had to implement Stages 2, 3 or 4 of Article 24. This is largely due to the District's construction of adequate water production facilities to meet adverse conditions. By continuing this philosophy, the District will be able to meet future demands, except under some extreme conditions where they may be forced, for a temporary period of time, to exercise the mandatory provisions of the District's Water Conservation Ordinance.

The District does not currently offer rebates for high-efficiency washers. This program is being considered by the District and could be implemented later this year. The following is a list of the water demand management activities and the status of each.

A)	Water Survey Programs	- Not Implemented
B)	Residential Plumbing Retrofit	- Implemented
C)	System Water Audits, Leak Detection, and Repair	- Implemented
D)	Metering with Commodity Rates	- Implemented
	Retrofit of Existing Connections	- Implemented
E)	Large Landscape Conservation Program	- Implemented
F)	High-Efficiency Washing Machine Rebate Program	- Implementation 2005/06
G)	Public Information Programs	- Implemented
H)	School Educational Programs	- Implemented
I)	Conservation Programs for Commercial Customers	- Implemented
J)	Wholesale Agency Programs	- Implemented
K)	Conservation Pricing	- Implemented
L)	Water Conservation Coordinator	- Implemented
M)	Water Waste Prohibition	- Implemented
N)	Residential Low Flush Toilet Program	- Implemented

SECTION FOUR

WATER SHORTAGE CONTINGENCY PLAN

General
The District is situated in the San Bernardino valley which is an arid desert region surrounded by mountains. The average rainfall in the valley is approximately 16-inches per year with occasional droughts on an average seven-year cycle.

During the droughts of 1986-1993 and 1999-2004, water levels in the District wells in the Lytle Basin were at their lowest recorded levels. The District suffered a significant loss of production capacity, but due to planning for drought periods, developing adequate water supplies the District was able to meet demands.

To offset the prolonged effects of the drought periods, the Board of Directors adopted a Water Conservation Plan with Ordinance No. 68 on July 5, 1990 by adding Article No. 24 entitled "Water Conservation" to its water service regulations and a Water Shortage Contingency Plan with Ordinance No. 69 on February 6, 1992 which amended portions of the Water Conservation Plan. On May 1, 2003 the Board of Directors adopted Resolution No. 390, rescinding all previous resolutions, which established water service regulations, schedules of rates, and charges.

Article No. 24 describes Water Conservation objectives and outlines four stages of action to be implemented during a water shortage. The District's Plan includes voluntary and mandatory stages. The purpose of Article 24 is to provide water conservation measures in order to minimize the effect of a water shortage on the citizens of, and the economic well-being of the communities the District serves. This Article adopts provisions that will significantly reduce the wasteful and inefficient consumption of water, thereby extending the available water resources required for the domestic, sanitation, and fire protection needs of the citizens of the communities they serve while reducing the hardship on the District and the general public to the greatest extent possible.

Priorities By Use - The priorities for the use of available water, based on California Water Code Chapter 3 and community input are:

Health and Safety - Interior Residential and Fire Fighting
Commercial, Industrial and Governmental - Maintain Jobs and Economic Base
Crops - Project Jobs
Existing Landscaping - Especially Trees and Shrubs
New Demand - New Development and Construction

4.1 Stages of Action

(California Water Code Section 10632 (a))

In order to minimize the social and economic impact of water shortages, the District will manage water supplies prudently. This Plan is designed to provide a supply during a severe or extended water shortage as nearly normal as possible. The Plans stages were established by the District to ensure that the above policy statements are implemented.

As the shortages become evident to the District Manager, he invokes the appropriate stage, unless the Board of Directors votes otherwise. Shortages may evoke a stage at any time. The four-stage rationing plan to be undertaken by the District in response to water supply shortages is listed below and is described in Table 4-4 along with an outline of specific water supply conditions which are applicable to each stage.

Table 4-1
Water Supply Shortage Stages and Conditions
Rationing Stages

Stage No.	Water Supply Conditions	% Shortage
Stage 1	Normal	Normal
Stage 2	Water Alert	10% to 25%
Stage 3	Water Warning	25% to 35%
Stage 4	Water Emergency	35% to 50%

Stage 1 - Normal Conditions

During times of normal supply, it is recommended that water conservation be practiced within the home or business and all restaurants are requested not to serve water to their customers unless specifically requested by the customer. Stage 1 also lists water uses considered non-essential to the public health, safety, and welfare, and would be considered wasting of water and are therefore prohibited. These include the following;

- There shall be no hose washing of paved, concrete or other hard surface area unless done with a hand held hose equipped with a trigger nozzle, except for the flushing of dangerous or unhealthy substances.

- No water shall be used to clean, fill, operate or maintain levels in decorative fountains unless the water is part of a recycling system.

- The repair of leaking plumbing fixtures shall be repaired in a timely manner so as to not waste water.

- Washing of automobiles, trucks, trailer, boats, and other mobile equipment is prohibited unless done with a hand held device equipped with an automatic shut off trigger nozzle. This does not apply to commercial car washes utilizing a recycling system or when the health and safety of the public would necessitate.

- Water used which results in flooding or run-off should be prevented and controlled.

- The use of sprinklers for any type of irrigation during high winds is prohibited.

The District's water rate schedule is based on a fixed monthly meter charge per meter size and a commodity charge per 100 cubic feet consumed. The following tables represent the adopted monthly meter charge and commodity rate.

Rate Schedule Adopted (September 2, 2004) - Monthly Service Charge by Meter Sizes

Table 4-2
Water Rate Schedule (Stages 1, 2,3 & 4)

METER SIZE	Inside District	Outside District
5/8" x 3/4"	$7.96	$11.94
1"	$11.87	$17.81
1 ½"	$17.51	$26.27
2"	$24.12	$36.18
3"	$35.02	$52.53
4"	$46.17	$69.26
6"	$70.05	$105.08
8"	$93.92	$140.88

Table 4-3
Water Rate Schedule

Water Usage	Inside District	Outside District
per 100 cu. ft.	$0.80	$1.20

Table 4-4
Water Conservation Provisions of Stages 2, 3 and 4

Stage 2 **Water Alert**	**Stage 3** **Water Warning**	**Stage 4** **Water Emergency**
Voluntary minimum 10% over last years consumption	Voluntary minimum 15% over last year's consumption, unless otherwise stated	Voluntary minimum 20% over last year's consumption, unless otherwise stated
Washing of automobiles, trucks and boats is prohibited unless it is done at a commercial carwash that recycles water	Same as Stage 2	Same as Stage 2
Commercial nurseries shall water only between 11pm and 6am - hand-held devices - drip irrigation - limited to 25% of last year's consumption	Commercial nurseries shall water only between 11pm and 6am - hand-held devices - drip irrigation - limited to 50% of last year's consumption	Same as Stage 3
All golf courses and large landscaped areas shall be irrigated between 11pm and 6am - Consumption reduced by 25% unless raw creek water or reclaimed water	School grounds to be watered on odd numbered days. All watering between 11pm and 6am. - Consumption reduced by 40%	No lawn or landscape watering
All publicly owned lawns, landscape watered between 11pm and 6am - Consumption reduced by 25%	All other publicly owned lawns, landscape watered on even numbered days - Consumption reduced by 50%	No lawn or landscape watering
All residential lawn watering to be done between 8pm to 6am	All residential lawn watering to be done on odd and even days corresponding to house number between 8pm to 6am	No lawn or landscape watering
		Water use limited to essential household, commercial, manufacturing or processing uses
Irrigation limited to crops presently planted	All agricultural water users shall irrigate only at times approved by the District	Same as Stage 3
	Swimming pools and fountains not to be refilled after draining	Same as Stage 3
Construction water shall be by permit only	Construction water shall be by permit only	No construction water, construction meters to be locked off or removed

Stage 2 Water Alert	Stage 3 Water Warning	Stage 4 Water Emergency
All restaurants prohibited from serving water to their customers except when requested by customer	Same as Stage 2	Same as Stage 2

4.2 Estimate of Minimum Supply for Next Three Years
(California Water Code Section 10632 (b))

The District receives water supplies from various sources including groundwater from five basins, and surface water from two sources, Lytle Creek surface flows and imported SPW. Of these water sources, 69% of the District's supply in 2004 came from their groundwater wells, 20% from surface flows and 11% purchased water. Due to the fact that the majority of water supplied comes from the groundwater wells the loss of this source would represent the worst situation for the District.

The worst case supply availability for the District's groundwater wells would be the minimum well production capacity as shown in Table 2-9. Therefore Year 3 in the table below reflects the projected worst case groundwater supply. With the precipitation that the area received last winter recharging the Lytle Creek groundwater basin, it is highly unlikely that production will decrease within the next three years down to the District's worst projected supply availability. This scenario, however, has been used to demonstrate that the anticipated demands for this time frame can be met by the District under the most severe drought. During a drought in Southern California, it is highly unlikely that there will be a simultaneous drought in Northern California. For that reason, this report has utilized full State Project Water projections.

Table 4-5
Worst Case Water Supply Availability
Three-Year Estimated Minimum Water Supply (AF/Yr)

Source	Normal Supply Year (1996)	Year 1 (2006)	Year 2 (2007)	Year 3 (2008)
Lytle Creek Basin	20,836	8,000	6,500	5,000
North Riverside Basin	2,801	5,000	4,000	3,000
Rialto Basin	8,178	6,134 [(1)]	5,400	3,067
Bunker Hill Basin [(2)]	6,385	5,500	5,500	9,000 [(3)]
Chino Basin	2,689	2,000	1,500	1,000
Lytle Creek Surface Flow	4,480	5,500	4,500	3,000
State Water Project	0	8,800	10,000	10,000
TOTAL	**45,369**	**40,934**	**37,400**	**34,067**

(1) Due to the groundwater depletion by other water purveyors, 6,134 AF/Yr is thought to be the safe yield under adjudication.
(2) Includes existing wells and contracted allotment from SBVMWD through the Baseline Feeder. The District has agreed to limit their extraction in the basin for the next few years with the City of San Bernardino.
(3) Production in the Bunker Hill basin is expected to increase by 2008. This is due to the replacement of the Etiwanda Avenue pipeline and the drilling of 3 new wells in the Newmark Plume per agreement with the City of San Bernardino.

The normal supply year shown above is based on the potential capacity of existing wells at that time, not their actual production. The normal supply capacity is based on the District's 1996 Water Master Plan which designates 1996 as a normal water year.

The District's existing nine wells in the Lytle Creek Basin have had water levels decline over 300 feet from 1985 to 1990 while levels in the Bunker Hill Basin only declined 60 feet, in the same time period. Due to these drought conditions, the District has been preparing to shift its main source of supply from the Lytle Creek Basin to the Bunker Hill Basin. The Bunker Hill Basin contains over 5,000,000 acre feet of water and has sufficient supply for many consecutive drought years without any natural recharge. Groundwater pumping within this basin has been partially controlled by a court judgment, which determined that the safe yield for the Bunker Hill Basin to be 232,100 acre-feet per year. It is believed that this control on pumping, combined with SPW deliveries and annual rainfall, is sufficient to replenish the basin storage level for all potential future demands.

The District has a contract to receive up to 5,000 AF/Yr of water from SBVMWD through the Baseline Feeder and is planning additional wells in the Bunker Hill Basin in the next two years as a back-up water supply for its groundwater and surface flow supply in the Lytle Basin. The District has agreed with the City of San Bernardino to limit their extraction in the Bunker Hill Basin for the next few years, but production is expected to increase by 2008 when the additional wells are drilled. These wells when constructed and connected to the Baseline Feeder are expected to have the ability to deliver 5,000 AF/Yr under normal conditions.

As can be seen from Table 4-5 the worst case water supply availability of 34,067 acre-feet in 2008 will be sufficient to supply the projected demand for the Districts service area of 27,600 acre-feet.

4.3 Catastrophic Supply Interruption Plan

(California Water Code Section 10632 (c))

Extended multi-week supply shortages due to natural disasters or accidents which damage all water sources are unlikely. The District's 23 storage reservoirs hold 65.6 million gallons, which is sufficient water to meet the health and safety requirements of 50 gallons per day per capita for the 60,121 customers for 21 days. This assumes zero non-residential use. Under emergency power outages or a catastrophic earthquake conditions, the existing storage is expected to provide a minimum supply of 3.5 days of average day demand or 1.7 days under maximum summer demand.

The District is planning to construct an additional 12.5 million gallons of storage within the next few years for a total of 78.11 million gallons which would give the District 4.2 days of average day demand. The District also has interconnections with three other agencies for emergency supplies.

The District has portable back-up generators that can be used in the event of an area wide power outage. These generators can be located on both wells and booster stations to continue water production. These generators will be located in the northern part of the distribution system. Water can then be boosted to higher zones or gravity fed to the lower zones. In addition to the portable generators, the District is constructing back-up generators at the Zone 5 and 6 booster stations.

4.4 Prohibitions, Penalties, and Consumption Reduction Methods
(California Water Code 10632 (d-f))

Consumption limits in the progressively restrictive stages are imposed on different uses. These are based on percentage reductions in water allotments, and restrictions on specific uses. The specific percentage reductions at each stage and for each user class are listed in Table 4-4 and include watering on even or odd numbered days, watering time frames and limitations on irrigation and construction water. The individual customer allotments will be based on the previous year's use. This provides the District a basis for reviewing appeals.

Mandatory provisions to reduce water use during the different stages of water shortage are also summarized in the table. Provisions of Ordinance No.68, Article 24 - Water Conservation, adopted May 1, 2003 was adopted pursuant to Sections 375 and 376 of the California Water Code. Any second or subsequent violation of this policy after notice as specified in Section 2411 1(a) is a misdemeanor. (California Water Code Section 377)

Violations - In addition to criminal prosecution available to the District as described above, violation of this Ordinance may result in the imposition of surcharges and restriction and/or termination of water service as set forth below:

First Violation - written warning accompanied by a copy of the Ordinance.

Second Violation (within one year) - a surcharge of $100 or 100% of the current water billing cycle, whichever is higher.

Third Violation (within one year of the first violation) - a surcharge of $300 or 200% of current water billing cycle, whichever is higher, and installation of flow restricting device in the meter for a minimum of 96 hours.

Fourth Violation (within one year of the first violation) - a surcharge of $500 or 300% of the current water billing cycle, whichever is higher, and termination of service for such period as the Board of Directors determines to be appropriate under the circumstances, following a hearing regarding said issue. Written notice of the hearing shall be mailed to the customer at least ten days before the hearing.

Surcharges, Additional Charges - Any surcharge assessed shall be in addition to the basic water rates and other charges of the District for the account and shall appear on and be payable with the billing statement for the period during which the violation occurred; non-payment shall be subject to the same remedies available to the District as for non-payment of basic water rates.

In addition to any surcharge, a customer violating this Ordinance shall be responsible for payment of the District's charges for installing and/or removing any flow restricting device and for disconnecting and/or reconnecting service per the District's Schedule of Charges at that time in effect. Such charges shall be paid prior to the removal of the flow restrictor or reconnection of service, whichever the case may be.

4.5 Analysis of Revenue Impacts on Reduced Sales During Shortages
(California Water Code Section 10632 (g))

The District has a uniform price per unit rate structure (100 cubic feet) where all users within a user classification pay the same rate along with associated monthly service charges. Beyond providing more dependable water supply for domestic and fire service, the construction of additional water storage facilities allows the District to utilize one of the lowest power rates offered by Southern California Edison in turn allows the District to operate with one of the lowest water rates in the area.

An analysis of the impact of rationing was performed on the revenues and expenditures of the District. During a Stage 2, 3, or 4 water supply shortage the following reduction in consumption will occur based on the voluntary and mandatory provisions of the plan.

Table 4-6
Estimated Annual Reduction of Water Consumption
During Water Stages (Stage 2, 3 and 4)
(per 100 cu.ft.)

	Water Consumption Year June 30, 2004 [1] (per 100 Cu. Ft.)	Reduction	Stage 2 Estimated Water Reduction	Reduction	Stage 3 Estimated Water Reduction	Reduction	Stage 4 Estimated Water Reduction
Domestic	8,376,527	15%	1,256,480	20%	1,675,305	50%	4,188,264
Irrigation	274,513	25%	68,628	50%	137,257	100%	274,513
Total	8,651,040		1,325,107		1,812,562		4,462,777

[1] Based on Fiscal Year 2003/2004 annual consumption of domestic and irrigation of 8,651,040 cu. ft.

The following decrease in revenue is expected during the implementation of the appropriate rationing stage.

Table 4-7
Estimated Annual Revenue Reduction of Water Sales
During Water Stages (Stage 2, 3 and 4)

	Stage 2	Stage 3	Stage 4
Reduced Annual Water Sales	$1,044,301	$1,418,481	$3,507,083

[1] Based on Commodity Rates adopted September 2, 2004 and includes reduction in domestic and irrigation sales.

The projected reduction in consumption as tabulated in Table 4-6, calculates that the reduction of water usage on a voluntary and mandatory basis would result in a revenue reduction as shown in Table 4-7. This table shows the estimated reduction in revenue for a 12 month period during a Stage 2, 3, and 4 water supply shortage. Reduced annual revenue from domestic and irrigation water sales is estimated to be $1,044,301 during Stage 2, $1,418,481 during Stage 3, and as high as $3,507,083 during Stage 4 of a water supply shortage.

As described in Table 4-4, a Stage 2 shortage calls for a reduction in water consumption, in Stages 3 and 4, mandatory conservation measures and prohibition are called for. When a Water Shortage Emergency is declared, the supply shortage will trigger the appropriate rationing stage and appropriate charges and penalties. Proposed measures to overcome those impacts, such as the development of reserves and rate adjustments were formulated as outlined below.

The District does not currently encourage conservation through water pricing. The District has adopted a tiered rate structure to be instigated during Stages 2 through 4 drought conditions only. The monthly commodity charge for water usage for a 3/4" meter during Stages 2 through 4 are as follows:

Table 4-8
Tiered Water Rate During Stage 2, 3 and 4 Water Supply Shortage

0 to 20 units [1]	@ Base Rate [2]
21 to 30 units	@ 1.5 times Base Rate
31 to 40 units	@ 2.25 times Base Rate
41+ units	@ 3.375 times Base Rate

[1] Based on 500 gpd/equivalent 3/4" meter for 20 units per month. 1 unit equals 100 cubic feet or 748 gallons.
[2] District's existing base rate for its commodity charge is $0.80 per unit.

In order to mitigate the financial impacts of a water shortage, the District maintains sufficient funds within their account. The Department of Water Resources suggests maintaining funds in excess of 75 percent of normal water revenue. The District's funds currently have a balance in excess of that goal. Surplus revenues are currently used to fund the District's General O & M Fund which pays for all of the District's operating and nonoperating expenses. This fund can be used to stabilize water rates during periods of water shortage or disasters affecting the water supply. It can also fund Capital Improvement or recycled water projects.

A drought as seen in 2003/2004 resulted in increased water demand and, in return, increased water sales above non drought years. Groundwater levels within the District declined, prompting elevated pumping costs and required the District to buy additional supplies of SPW which is a more expensive water source. The District incurred further expenses by having to treat the SPW at the Oliver P. Roemer Water Filtration Facility. Expenses for treating SPW in 2003/2004 was almost double that of the previous fiscal year.

4.5.1 Revenue Projections During Water Shortages

In order to project the possible effect of conservation on revenues from water sales, an analysis of the water records was completed. Active water connections were as follows:

Table 4-9
Fixed Water Service Usage Charge Revenue

Meter Size	Number of Meters as of Jan. 1, 2003 [1]	Number of Meters as of June 30, 2004	Monthly Service Charge	Yearly Fixed Water Service Usage Charge
Domestic				
5/8"	3,478	3,692[1]	$7.96	$352,660
3/4"	9,983	9,983	$7.96	$953,576
1"	2,705	2,705	$11.87	$385,300
1-1/2"	123	123	$17.51	$25,845
2"	142	142	$24.12	$41,100
3"	9	9	$35.02	$3,782
4"	17	17	$46.17	$9,419
6"	7	7	$70.05	$5,884
8"	5	5	$93.92	$5,635
	16,469	16,683		$1,783,202
Fire				
2"	26	26	$10.00	$3,120
4"	13	13	$20.00	$3,120
6"	44	44	$30.00	$15,840
8"	44	44	$40.00	$21,120
10"	3	3	$50.00	$1,800
	130	130		$45,000
Irrigation				
All meters	19	19	$31.50	$7,182
Total	16,618	16,832		$1,835,384

[1] Sizes and quantities of meters for January 1, 2003 was obtained from the Water Master Plan. The sizes of the additional meters since that time where not available and were calculated using a 3/4" meter rate.

Based on the monthly fixed water service usage charges assigned by the rate schedule the fixed annual revenue was calculated to be $1,835,384.

Even with these reserves, rate increases may be necessary during a prolonged water shortage. The District may wish to increase the fixed monthly meter service charge to cover the shortfall in revenue resulting from the decrease in water sales during a water shortage. The additional revenues would also help to cover the increased operating and water expenses that occur. The current fixed monthly meter charge within the District's service area is below that of several local water providers.

Table 4-10
Water Sales by Month - Fiscal Year Ending June 30, 2004

Month	Domestic	Irrigation	Wholesale	Bulk	Monthly Total [1]
	$814,927	$11,017	$6,034	$15,391	**$847,369**
August	$858,150	$11,028	$7,425	$45,720	**$922,323**
September	$864,447	$10,018	$7,917	$36,283	**$918,665**
October	$772,045	$10,278	$10,688	$38,545	**$831,556**
November	$672,058	$6,868	$11,245	$38,874	**$729,045**
December	$550,797	$4,125	$8,605	$36,375	**$599,902**
January	$560,533	$5,057	$8,919	$17,795	**$592,304**
February	$530,137	$4,946	$8,665	$21,683	**$565,431**
March	$484,021	$2,842	$8,314	$1,220	**$496,397**
April	$647,587	$7,351	$3,648	$25,418	**$684,004**
May	$715,235	$9,246	$7,713	$18,769	**$750,963**
June	$878,511	$4,986	$8,777	$19,687	**$911,961**
Total	**$8,348,448**	**$87,762**	**$97,950**	**$315,760**	**$8,849,920**

[1] Totals include fixed water service charges.

After an extended water shortage, water revenues are expected to fall below pre-shortage levels. The water use is projected at 90% of the pre-shortage use, which would result in a reduction of revenue during the twelve month period after the end of a water supply shortage.

4.6 Draft Ordinance and Use Monitoring Procedure
(California Water Code Section 10632 (h-I))

The mechanism for determining actual reductions in water use pursuant to the urban water shortage contingency plan will be the review of the daily production figures and the monthly water meter readings.

The General Manager of the District, or his designee, shall access all available water supply data and shall make a report of his findings to the Board of Directors at the next regular meeting or at a special meeting called for that purpose. The Board of Directors at that time determine and declare which of the four previously discussed conditions the District's water supply is in and the extent of water conservation required to prudently plan for and supply water to the District's customers.

Stage 1 - Normal Conditions
In normal water supply conditions, production figures are recorded daily. Totals are reported daily on a continuous computerized monitoring system and reviewed by the Superintendent. Totals are reported monthly to the Watermaster and incorporated into the water supply report.

Stage 2 - Water Alert
During a Stage 2 water shortage, daily production figures are reported to the Superintendent who compares the daily production to the target daily production to verify that the reduction goal is being met. Reports are forwarded to the General Manager on an as-needed basis, continuously if appropriate.

Stage 3 - Water Warning
During a Stage 3 water shortage, the procedure listed above will be followed.

Stage 4 - Water Emergency
During a disaster shortage, the General Manager or his designee will report continuously to the Board of Directors and inform the San Bernardino County Office of Emergency Services. Special Board meetings can be convened should authorization for special action be needed.

A coordinated response to water supply shortages is necessary for uniformity in developing, implementing and enforcing Drought Contingency Plans. The District's primary source of water is groundwater wells within the Bunker Hill Basin. SBVMWD's primary function is to plan and develop a long-range water supply for water agencies within this Basin.

SBVMWD is a member agency of the California State Water Project, which imports water from Northern California. SBVMWD imports SPW to water agencies within SBVMWD's boundary and to artificially recharge the groundwater basin.

SBVMWD has a maximum entitlement of 102,600 acre-feet per year of SPW, and has developed approximately $70 million of regional facilities to transport both local and SPW within their District.

SECTION FIVE

RECYCLED WATER PLAN

5.1 Coordination

All of the wastewater collection and treatment within the District is handled by the City of Rialto. The City has a 12.0 mgd tertiary treatment plant with a current flow of 8 mgd. All of the City's treatment plant effluent meets Title 22 for recycled water usage in restricted irrigation. Reclaimed water not currently being used for irrigation is discharged into the Santa Ana River.

5.2 Wastewater Quantity, Quality, and Current Uses

(California Water Code Section 10633 (a-c))

The City of Rialto has constructed a hydropneumatic booster station and approximately 7,000 feet of 10-inch diameter transmission water line to provide Caltrans with recycled water for irrigation of landscape for the I-10 Freeway from Pepper Avenue to Cherry Avenue. This is approximately 42,000 feet of landscape irrigation corridor within the right-of-way for the I-10 Freeway. Caltrans has been using 1.0 mgd of recycled water during the summer months and 0.5 mgd during the winter. Currently there are no other users of the recycled water.

Table 5-1
Recycled Water Uses - Actual (AF/Yr)

e of Use	**tment Level**	
ation - Caltrans I-10 Freeway	Title 22	850

Other Recycle Water Projects - The District is utilizing non-potable raw SPW and decanted backwash water from the Oliver P. Roemer Water Filtration Facility to supply the El Rancho Verde Golf Course (its largest user). Records show that the golf course consumed 1,357 acre-feet in 2003.

5.3 Potential and Projected Use, Optimization Plan

(California Water Code Section 10633 (d-g))

The District is studying the use of reclaimed water from perchlorate contamination in the Rialto Basin to supply other irrigation and industrial users. The sources would be wells that would extract water from the Rialto Basin which has high concentrations of the contaminate perchlorate and remove the perchlorate with biological treatment. The non-potable effluent from the biological treatment plant could then be used to supply existing non-potable customers that currently must use potable water including the Mid-Valley Landfill (134 AF/Yr) and the adjacent Robertson Ready Mix (510 AF/Yr) sand and gravel operations. In the future, there may be industrial users that may utilize recycled water.

Table 5-2
Recycled Water Uses - Potential (AF/Yr)

e of Use	**tment Level**				
r - Mid Valley Landfill (Dust Control)	Title 22	130	130	130	130
strial - Robertson's Ready Mix (Sand and Gravel)	Title 22	500	500	500	500
strial - Sun West Materials (Sand and Gravel)	Title 22	800	800	800	800
strial - Vulcan (Sand and Gravel)	Title 22	800	800	800	800
lscape - Schools and Parks	Title 22	100	100	100	100
lscape - Golf Course	Title 22	1,360	1,360	1,360	1,360
	Total	3,690	3,690	3,690	3,690

Water being used at the Vulcan Sand and Gravel site is being supplied from a groundwater well located on the premises. The Sun West Materials Sand and Gravel company uses surface flow from Lytle Creek in addition to raw SPW. The remaining potential recycle water users are currently using potable water from the District's domestic system to supply demand.

The City of Rialto is investigating the expansion of their existing tertiary treatment plant and reclaimed water system as a way to supplement the City's water supply. The City prepared a Wastewater Master Plan that investigated recycled water systems as a way to supplement the City's water supply and reduce the need to purchase water. The plan analyzed the feasibility of converting a currently unused water main that extends several miles up Riverside Avenue and identified potential landscape irrigation customers. A preliminary design and cost estimate for the first phase of the recycled water system was also prepared.

The City is also investigating the use of package plants in the north end of the City. If the City were able to extend non-potable water service in the north end of the city, then the District could utilize this recycled source and in so doing reduce the demand on their potable water system.

The last Urban Water Management Plan prepared for the District projected the use of 400 AF/Yr for landscape irrigation at the El Rancho Verde Golf Course. In actuality, the golf course is using more than three times as much.

Table 5-3
Recycled Water Uses - 2000 Projection compared with 2005 Actual (AF/Yr)

e of Use	Projection for 2005	al Use
lscape Irrigation - Rancho El Verde Golf Course	400	1,300

5.3.1 Financial Incentives to Promote the Use of Recycled Water

The District currently has several rates for water (Article 21). Hydrant water is $566/AF, domestic use is $348/AF, and irrigation use is $248/AF. If all recycled water was charged at $218/AF, there would be a definite financial incentive to use recycled water. Unfortunately, most of the potential large users for recycled water are six to eight miles from the City of Rialto's wastewater treatment plant and would require an approximate 700 to 900-foot lift. The cost associated with the construction of the recycled water line and the booster pumps required do not make this project economially feasible at this time.

If the City of Rialto were able to provide recycled water to the District in the north end of the City at a rate equal to or less then what the District's large landscape users are currently paying, then the District would consider using this water source. It is not known at this time what price the City of Rialto would charge to provided recycled water to the District.

SECTION SIX

WATER QUALITY IMPACTS ON RELIABILITY

6.0 Water Quality

(California Water Code Section 10634)

The District's water sources are of medium to good quality at this time. **The District is studying using reclaimed water from perchlorate contamination in the Rialto Basin to supply irrigation and industrial users. The sources would be wells** (capacity of 3,000 gpm) **to extract water supply from the Rialto Basin that has high concentrations of the contaminate perchlorate and remove the perchlorate with biological treatment. The non-potable effluent from the biological treatment plant would then be used to supply existing non-potable customers that currently use potable water for water supply.** The Rialto Basin's perchlorate contamination is expected to be remediated for ultimate supply.

The Bunker Hill Basin, one of the District's projected main sources has some areas of potential contamination problems. The City of San Bernardino, in cooperation with the Environmental Protection Agency, has a Proposition 65 clean-up site in the Bunker Hill Basin. The District is presently negotiating with the City for additional groundwater. This project could provide the District with up to 5,000 AF/Yr of supply for ten years.

The District is a member of the Chino Basin Watermaster. The Chino Basin purveyors are presently negotiating with Metropolitan Water District of Southern California to start a conjunctive use and storage program in the Chino Basin. This Basin has some contaminate problems and with conjunctive use and storage with Metropolitan Water District, the contaminate could be reduced, increasing the storage in this Basin. This will allow the District to better utilize the Chino Basin water supply.

Geologic hazards within Lytle Creek have the potential to disrupt the water supply system by restricting the flow and/or introducing large quantities of suspended solids to the runoff, thereby increasing turbidity levels. The District is expanding the treatment process capability of the Oliver P. Roemer Water Filtration Facility to achieve both turbidity removal and total organic carbon (TOC) reduction by providing pretreatment facilities.

Water quality within the District will not change their management strategy or the reliability of the water supply. The District is planning to construct treatment facilities to remove the volatile organics (TCE and PCE) on existing and future proposed wells when needed. All water provided by the District, meets or exceeds all Federal and State Requirements.

SECTION SEVEN

WATER SERVICE RELIABILITY

7.1 Projected Normal Water Year Supply and Demand

(California Water Code Section 10635 (a))

An assessment on the reliability to provide water service to the customers within the District during normal, single dry, and multiple dry water years was performed and is reflected in the following tables. The assessment compares the water supply sources available to the District with the projected water use over the next 20 years, in five-year increments and is based on the information compiled in Section Two.

Although all of the water sources listed below in Table 7-1 are available to the District, should they be required, the District may use more or less from a particular source. Factors that affect the District's production vary and may include pumping costs associated with certain basins, replenishment costs, treatment costs, agreements with other agencies, basin water levels, judgments, adjudications, SPW allotments, system demands, and the District's ability to utilize the source.

Table 7-1
Projected Normal Water Year Supply and Demand Comparison
Period 2010-2025 (AF/Yr)

rce	2010	2015	2020	2025
e Creek Basin	10,000	10,000	10,000	10,000
h Riverside Basin [1]	6,000	8,000	6,000	5,000
o Basin	10,000	10,000	10,000	10,000
ker Hill Basin	10,000	12,000	15,000	25,000
o Basin	3,000	3,000	3,000	3,000
e Creek Surface Water	5,500	5,500	5,500	5,500
Project Water	15,000	15,000	17,000	23,000
UPPLY	**59,500**	**63,500**	**66,500**	**81,500**
EMAND	**30,000**	**33,700**	**39,000**	**45,000**
URPLUS	**29,500**	**29,800**	**27,500**	**36,500**

[(1)] The well capacity projected for the District in the North Riverside Basin as shown in Table 2-9 reflects a range of production of 5,000 AF/Yr to 3,000 AF/Yr. These numbers are based on future extraction limitations. In the interim from 2010 through 2020 it is assumed that the District will have the ability to pump up to 8,000 AF/Yr during a normal water supply year. The District's production within this basin is projected to decrease after 2020 when it is thought that the City of Riverside will exercise their adjudicated rights in the basin.

The normal water year supply is based on an average water supply year and the annual production range as shown in Table 2-9. Information used in Table 2-9 was obtained from the District's 2004 Water Master Plan Table 7.10 and from SPW projections. The future demands which include residential, commercial, agricultural, and unaccounted for water are based on the demand projections from Table 2-14.

The projected water supply facilities include existing and planned capital improvement projects through the year 2010 as well as future supply projects. The exact date of the implementation of future supply projects is not known at this time, but have been added to these tables to include their supply capacity for future demands. The supply includes future wells in the Lytle Creek Basin constructed for the Lytle Creek North Planned Development, future wells in the Bunker Hill Basin, and contracted allotment from SBVMWD through the Baseline Feeder and from State Project Water projections from Table 2-17. During a drought in Southern California, it is highly unlikely that there will be a simultaneous drought in Northern California. For this reason full SPW projections have been utilized in all of the reliability assessment tables.

The well capacity projected for the District in the North Riverside Basin as shown in Table 2-9 reflects a range of production of 5,000 AF/Yr to 3,000 AF/Yr. These numbers are based on future extraction limitations. In the interim from 2010 through 2020 it is assumed that the District will have the ability to pump up to 8,000 AF/Yr during a normal water supply year. The District's production within this basin is projected to decrease after 2020 when it is thought that the City of Riverside will exercise their adjudicated rights in the basin.

The District plans to develop adequate water supplies to meet demands during both normal and drought conditions. During a normal water year, the projected water supply for the District far exceeds the anticipated demand even without SPW projections.

7.2 Projected Single Dry Year Supply and Demand Comparison

Water use patterns during a dry year will differ from those in a normal water year. Irrigation demands will increase and reduction in demands resulting from implemented rationing may occur. There are no substantial agricultural demands within the District that will affect demand.

Table 7-2
Projected Single Dry Year Supply and Demand Comparison
Period 2010-2025 (AF/Yr)

rce	2010	2015	2020	2025
e Creek Basin	9,500	9,500	9,500	9,500
h Riverside Basin	6,000	8,000	6,000 [(1)]	5,000 [(1)]
o Basin	9,500	9,500	9,500	9,500
ker Hill Basin	9,500	11,000	14,000	23,000
o Basin [(2)]	3,000	3,000	3,000	3,000
e Creek Surface Water	3,000	3,000	3,000	3,000
Project Water	15,000	15,000	17,000	23,000
UPPLY	**55,500**	**59,000**	**62,000**	**76,000**
EMAND	**30,000**	**33,700**	**39,000**	**45,000**
URPLUS	**25,500**	**25,300**	**23,000**	**31,000**

[(1)] Anticipating that the City of Riverside will exercise their adjudicated rights in the basin which will affect water levels and production capacity for the District.

[(2)] The District is planning to install well head treatment on well W-39 in the future which will increase production capacity. Should the District require additional supply, they have the option of purchasing additional Chino Basin water.

The well capacity production range as shown in Table 2-9 for the North Riverside Basin is based on future extraction limitations. In the interim, the District will have the ability to pump additional supply from this basin until such time when the City of Riverside will exercise their adjudicated rights in the basin.

The demand as shown in Table 7-2 reflects consumption without rationing. Future planned facilities and additional purchased water are expected to supply the projected demand through the year 2025 during a single dry water year.

7.3 Projected Multiple Dry Year Supply and Demand Comparison for 2006-2010

The annual production for all of the water sources available to the District during multiple dry years is based on historical usage where available and from the production potential of each source as outlined in Table 2-9 and Table 7.10 from the District's 2004 Water Master Plan. Within the next five years, changes in production capacity will be affected by several of the capital improvement projects and pumping limitations.

The projected supply shown in Table 7-3 reflects the production capacity of the five-year capital improvement projects of the District. The demand is based on information outlined in the District's Water Master Plan and known developments that will occur during this time frame as discussed earlier in this report.

Table 7-3
Projected Supply and Demand Comparison
During Multiple Dry Years 2006-2010 (AF/Yr)

rce	2006	2007	2008	2009	2010
Creek Basin	10,000	8,200	7,500	6,200	5,000
n Riverside Basin [1]	6,000	5,500	5,000	4,500	4,000
o Basin [2]	6,134	5,400	4,600	3,800	3,067
er Hill Basin [3]	5,500	5,500	9,000 [4]	9,000	9,000
o Basin	2,000	2,000	2,000	3,000 [5]	3,000
Creek Surface Water	5,000	4,500	4,000	3,500	3,000
Project Water [6]	8,800	9,300	9,800	14,500 [7]	15,000
Projected Supply	**43,434**	**40,400**	**41,900**	**44,500**	**42,067**
% of Projected Normal	---	---	---	---	74%
Projected Demand	**25,200**	**26,400**	**27,600**	**28,800**	**30,000**
% of Projected Normal	100%	100%	100%	100%	100%
Surplus	**18,234**	**14,000**	**14,300**	**15,700**	**12,067**
Surplus as a %	42%	35%	34%	35%	29%

[1] The District's Water Master Plan projects a range of annual production from the North Riverside Basin of 5,000 to 3,000 AF/Yr. This number is based on ultimate supply when the City of Riverside will have exercised their rights in the Basin.

[2] Due to the groundwater depletion 6,134 AF/Yr is thought to be the safe yield under adjudication.

[3] Includes existing wells and contracted allotment from SBVMWD through the Baseline Feeder. The District has agreed to limit their extraction in the basin for the next few years with the City of San Bernardino.

[4] Production in the Bunker Hill basin is expected to increase by 2008. This is due to the replacement of the Etiwanda Avenue pipeline and the drilling of 3 new wells in the Newmark Plume per agreement with the City of San Bernardino.

[5] Production in the Chino Basin (which does not appear to be affected during drought periods) is expected to increase in 2009 when well head treatment is put on well W-39 adding extra capacity.

[6] With the completion of the Oliver P. Roemer Water Filtration Facility upgrades, the District will be able to utilize additional SPW.

[7] Construction of the 4.0 mgd Lytle Creek North Planned Development Water Filtration Facility.

Due to the groundwater depletion in the Rialto Basin, 6,134 AF/Yr is thought to be the safe yield of the Basin under adjudication. During a multiple dry year scenario, the annual production range for the Basin could decline to the minimum potential supply of 3,067 AF/Yr. Future extractions from the Rialto Basin for the District are projected to be within these ranges.

The well production range as shown in Table 2-9 for the North Riverside Basin is based on future extraction limitations. In the interim, the District will have the ability to pump additional supply from this Basin until such time when the City of Riverside will exercise their adjudicated rights in the Basin.

Production in the Chino Basin, which does not appear to be affected during drought periods is expected to increase in 2009 when well head treatment is installed on Well W-39 adding extra capacity.

With the completion of the Oliver P. Roemer WFF upgrades and the Lytle Creek North Planned Development WFF, the District will be able to utilize additional SPW. The amount of purchased SPW depends on the availability of Lytle Creek Water and the combined treatment capacity of the existing Oliver P. Roemer WFF, the proposed expansion and the Lytle Creek North Planned Development WFF. By the year 2010 the combined total WFF treatment capacity is projected to be 18.4 mgd. Of the 18.4 mgd, the City of Rialto owns 1.5 mgd capacity in the Oliver P. Roemer WFF.

The projected supply for the Bunker Hill Basin includes the existing wells and the contracted allotment from SBVMWD through the Baseline Feeder. The District has agreed to limit their extraction in the basin for the next few years with the City of San Bernardino. Production in the Bunker Hill basin is expected to increase by 2008. This is due to the replacement of the Etiwanda Avenue pipeline and the drilling of three new wells in the Newmark Plume per an agreement with the City of San Bernardino.

The projected demand is based on normal usage and does not take into account rationing implemented during a Stage 2, 3, or 4 water shortage. The supply assumes all proposed sources will be available but in reduced quantities. In the event water supplies decrease beyond predicted levels, due to declining water tables, low surface flows, reduction in SPW allotments or water quality, the District may initiate the appropriate rationing stage. Rationing of the available supplies will alleviate the strain placed upon the system.

In the years 2010 and 2015 during the fifth year of a multiple dry year cycle, the District is projected to have 74% and 76% of its projected supply respectively. Even with this reduction in supply capacity, the District is projected to be able to provide the demand without rationing.

Table 7-4
Projected Supply and Demand Comparison
During Multiple Dry Years 2011-2015 (AF/Yr)

rce	2011	2012	2013	2014	2015
Creek Basin	10,000	9,200	8,500	7,700	7,000 [1]
n Riverside Basin	8,000 [2]	7,200	6,500	5,700	5,000
o Basin [3]	6,134	5,400	4,600	3,800	3,067
er Hill Basin	10,000	9,000	12,000 [4]	11,000	10,000
o Basin	3,000	3,000	3,000	3,000 [5]	3,000
Creek Surface Water	5,000	4,500	4,000	3,500	3,000
Project Water [6]	13,000	13,500	14,000	14,500	15,000
Projected Supply	**55,134**	**51,800**	**52,600**	**49,200**	**46,067**
% of Projected Normal	---	---	---	---	76%
Projected Demand	**30,740**	**31,480**	**32,220**	**32,960**	**33,700**
% of Projected Normal	100%	100%	100%	100%	100%
Surplus	**24,394**	**20,320**	**20,380**	**16,240**	**12,367**
Surplus as a %	44%	39%	39%	33%	27%

[1] The projected maximum range for this Basin as shown in the District's Water Master Plan is 5,000 AF/Yr. The production is projected to increase to 7,000 AF/Yr due to the recent annexation of the Lytle Creek North Planned Development into the District which will allow them to pump additional supply from this Basin.

[2] Production in the North Riverside Basin is expected to increase in year 2011 due to the construction of Wells W-19, W-29 and W-38.

[3] Due to the groundwater depletion 6,134 AF/Yr is thought to be the safe yield under adjudication.

[4] Production in the Bunker Hill Basin is expected to increase in 2013 with the construction of additional wells and modification to the management agreement with the City of San Bernardino.

[5] Addition well head treatment is expected to be installed on Well W-39 which will increase production of this well.

[6] During a drought in Southern California, it is highly unlikely that there will be a simultaneous drought in Northern California. For that reason, we have projected full State Project Water projections.

Production in several of the Basins is expected to increase between 2011 and 2015. The projected minimum range for the Lytle Basin as shown in the District's Water Master Plan and Table 2-9 is 5,000 AF/Yr. That minimum production range will increase to 7,000 AF/Yr due to the recent annexation of the Lytle Creek North Planned Development into the District which will allow them to pump additional supply from this Basin. Production in the Bunker Hill Basin will increase in 2013 with the construction of additional wells and modification to the management agreement with the City of San Bernardino. Production in the Chino

Basin will also increase when additional well head treatment is installed on Well W-39, boosting its production.

The well capacity production range as shown in Table 2-9 for the North Riverside Basin is based on future extraction limitations. In the interim, the District will have the ability to pump additional supply from this basin until such time when the City of Riverside will exercise their adjudicated rights in the basin. Production in the North Riverside Basin will increase in the year 2011 due to the construction of Wells W-19, W-29 and W-38.

The amount of purchased SPW depends on the availability of Lytle Creek Water and the combined treatment capacity of the water filtration facilities. By the year 2015 the combined total WFF treatment capacity is still 18.4 mgd. Of the 18.4 mgd, the City of Rialto owns 1.5 mgd capacity in the Oliver P. Roemer WFF.

The projected demand for 2011 through 2015 is based on normal usage and does not take into account rationing implemented during a water shortage. The supply assumes all proposed sources will be available but in reduced quantities. In the event water supplies decrease beyond predicted levels, the District may choose to purchase additional supply through the Baseline Feeder or pump more from the Chino Basin and pay replenishment costs.

In the years 2016 through 2020, water supply projects as shown in Table 7-5 will affect the projected supply for the District. Water supply is expected to increase in 2016 with the construction of additional wells in the Bunker Hill Basin and the expansion of the Lytle Creek North Planned Development WFF from 4.0 to 6.0 mgd. This will allow the District to utilize additional State Project Water. During a drought in Southern California, it is highly unlikely that there will be a simultaneous drought in Northern California. For that reason, we have utilized full State Project Water projections.

The amount of purchased SPW required depends on the availability of Lytle Creek Water and the combined treatment capacity of the water filtration facilities. By the year 2016 the combined total WFF treatment capacity is projected to be 20.4 mgd. Of the 20.4 mgd, the City of Rialto owns 1.5 mgd capacity in the Oliver P. Roemer WFF.

In 2019, when additional well head treatment is installed on Well W-39, the District is expected to increase production capability in the Chino Basin. Table 2-9 projects a potential production range of 1,000 AF/Yr to 3,000 AF/Yr from the Chino Basin but also shows that the District has no limit on extraction. The District may increase their production within this basin but will be required to pay replenishment costs.

Anticipating that the City of Riverside will exercise their adjudicated rights in the North Riverside Basin, water supply for the District is expected to decrease.

The projected demand from 2016 through 2020 is based on normal usage as shown in Table 2-14 and does not take into account rationing implemented during a water shortage. The supply assumes all proposed sources will be available but in reduced quantities. In the event water supplies decrease beyond predicted levels, the District may choose to purchase additional supply.

Table 7-5
Projected Supply and Demand Comparison
During Multiple Dry Years 2016-2020 (AF/Yr)

rce	2016	2017	2018	2019	2020
Creek Basin	10,000	9,200	8,500	7,700	7,000
n Riverside Basin	6,000 [1]	5,500	5,000	4,500	4,000
o Basin [2]	6,134	5,400	4,600	3,800	3,067
er Hill Basin	15,000 [3]	14,200	13,500	12,700	12,000
o Basin	3,000	3,000	3,000	3,000 [4]	3,000
Creek Surface Water	5,000	4,500	4,000	3,500	3,000
Project Water	15,000	15,500	16,000	16,500	17,000
Projected Supply	**60,134**	**57,300**	**54,600**	**51,700**	**49,067**
% of Projected Normal	---	---	---	---	77%
Projected Demand [7]	**34,760**	**35,820**	**36,880**	**37,940**	**39,000**
% of Projected Normal	100%	100%	100%	100%	100%
Surplus	**25,374**	**21,480**	**17,720**	**13,760**	**10,067**
Surplus as a %	42%	37%	32%	27%	21%

[1] The City of Riverside is expected to exercise their adjudicated rights in the Basin which will affect water levels and production capacity for the District.
[2] Due to the groundwater depletion 6,134 AF/Yr is thought to be the safe yield under adjudication.
[3] Production is expected to increase in the Bunker Hill Basin in 2016 with the construction of additional wells.
[4] Addition well head treatment is expected to be installed on Well W-39 which will increase production of this well.

The District's Water Master Plan projects a range of annual production from the North Riverside Basin of 5,000 to 3,000 AF/Yr. It is thought that by 2021 the City of Riverside will exercise their rights in the Basin and that the District may receive 3,000 AF/Yr during a multiple dry water year cycle.

Water supply is expected to increase in 2021 as shown in Table 7-6 with the construction of additional wells in the Bunker Hill Basin and the 6.0 mgd expansion of the Oliver P. Roemer Water Filtration Facility. This will allow the District to utilize additional State Project Water.

The amount of purchased SPW required depends on the availability of Lytle Creek Water and the combined treatment capacity of the water filtration facilities. By the year 2021 the combined total WFF treatment capacity is projected to be 26.4 mgd. Of the 26.4 mgd, the City of Rialto owns 1.5 mgd capacity in the Oliver P. Roemer WFF.

Table 7-6
Projected Supply and Demand Comparison
During Multiple Dry Years 2021-2025 (AF/Yr)

rce	2021	2022	2023	2024	2025
Creek Basin	10,000	9,200	8,500	7,700	7,000
n Riverside Basin [1]	5,000	4,500	4,000	3,500	3,000
o Basin [2]	6,134	5,400	4,600	3,800	3,067
er Hill Basin	25,000 [3]	22,500	20,000	17,500	15,000
o Basin [4]	3,000	3,000	3,000	3,000	3,000
Creek Surface Water	5,000	4,500	4,000	3,500	3,000
Project Water	21,000 [5]	21,500	22,000	22,500	23,000
Projected Supply	**75,134**	**70,600**	**66,100**	**61,500**	**57,067**
% of Projected Normal	---	---	---	---	73%
Projected Demand	**40,200**	**41,400**	**42,600**	**43,800**	**45,000**
% of Projected Normal	100%	100%	100%	100%	100%
Surplus	**34,934**	**29,200**	**23,500**	**17,700**	**12,067**
Surplus as a %	46%	41%	36%	29%	21%

[1] The District's Water Master Plan projects a range of annual production from the North Riverside Basin of 5,000 to 3,000 AF/Yr. It is thought that by 2021 the City of Riverside will exercise their rights in the Basin, limiting the District's extraction.
[2] Due to the groundwater depletion 6,134 AF/Yr is thought to be the safe yield under adjudication.
[3] Production in the Bunker Hill Basin is expected to increase with the construction of additional wells.
[4] Should the District require additional supply, they have the option of purchasing additional Chino Basin water.
[5] Expansion of the Oliver P. Roemer Water Filtration Facility will allow the District to utilize additional State Project Water. The exact time frame for this expansion is not known at this time.

The projected demand from 2021 through 2025 is based on normal usage as shown in Table 2-14 and does not take into account rationing implemented during a water shortage. The supply assumes all proposed sources will be available but in reduced quantities. In the event water supplies decrease beyond predicted levels, the District will assess all available water supply data and at that time determine whether to purchase additional supply or declare a water supply shortage.

The schedule for the District's future water supply projects is estimated and can change should unforeseen events occur that affect the projected supply availability. The District has several water sources available to it and can tailor future supply projects to meet their needs.

In order to minimize the social and economic impact of water shortages, the District manages its water supplies prudently. Existing and future supply projects are designed to provide a supply during a severe or extended water shortage as nearly normal as possible. The District is expected to be able to provide sufficient

supply to meet all of its future demands during normal, single dry, or multiple dry water years.

SECTION EIGHT

ADOPTION AND IMPLEMENTATION OF THE URBAN WATER MANAGEMENT PLAN